State of New Jersey
Department of Environmental Protection
Division of Water Quality
401 East State Street, P.O. Box 29
Trenton, New Jersey 08625-029

NON-PSEG

FACT SHEET
FOR A DRAFT NJPDES PERMIT INCLUDING SECTION 316(a) VARIANCE DETERMINATION AND SECTION 316(b) DECISION

Permit No. NJ0005622 Date:

Name & Address of Applicant:	Public Service Energy Group Nuclear LLC Salem Generating Station P.O. Box 236, N33 Hancocks Bridge, NJ 08038
Name & Address of Facility where Discharge Occurs:	Salem Generating Station Artificial Island Lower Alloway Creek Township Salem County, NJ
Receiving Water & Method of Conveyance:	Delaware Estuary via pipes
Receiving Water Classification:	Zone 5

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Section including all Tables, Figures and Maps Referenced throughout the Fact Sheet follows item XII – all references to tables, figures or maps within the Fact Sheet are underlined.

I. FACILITY OVERVIEW

Public Service Energy Group ("PSEG" or the "Company" or "Permittee") is the operator of the Salem Generating Station ("Salem" or the "Station"). PSEG requested a name change to its NJPDES permit on April 24, 2000 where the previous name was "PSE&G". PSEG shares ownership of the Station with PECO Energy (formerly Philadelphia Electric Company), and Conectiv Energy (formerly Atlantic Electric and DELMARVA Power and Light). The owners are members of the PJM Interconnection, L.L.C. (PJM) and PSEG sells its electricity in the PJM power pool.

The Station is located in Lower Alloways Creek Township, Salem County, NJ at River Mile 50 on the Delaware Estuary ("river" or "estuary"), 18 miles south of the Delaware Memorial Bridge. The Station is located on a projection of land known as Artificial Island on the eastern shore of the Delaware Estuary. B Figure 1 and the USGS map depicts the location of the facility. The estuary in the area of the Station is approximately

2.5 miles wide. The tidal flow of the river past the Station is approximately 400,000 cubic feet per second (cfs) or 259,000 million gallons per day (MGD). The river in the vicinity of the Station is characterized by variable salinity, tidal currents and a high quantity of particulate material suspended in the water column.

Salem is a three unit electric generating facility. Units 1 and 2 are nuclear powered, pressurized water reactors, each rated at about 1100 MWe. Units 1 and 2 use a once-through cooling water system and are operated as baseload electrical generating units. Unit 3 is an air-cooled combustion turbine rated at approximately 40 MWe. Unit 3 is used as a peaking and emergency standby generator and has no discharge to surface water. The Salem units were proposed in 1966 and construction was started in 1968. Salem Unit 1 began operation in 1977 and has a license to operate through 2017. Unit 2 began operation in 1981 and has a license to operate through 2021.

Four basic steps are involved in the production of electricity at Salem (refer to Schematic of Simplified Steam Electric Cycle) Fission in the nuclear reactors heats high purity water in each unit's primary loop system. Heat is then transferred in a heat exchanger (steam generator) to a secondary loop system creating steam. The steam is used to drive turbines so that some of the energy in the steam is converted to mechanical energy. The turbines are connected to generators that convert the mechanical energy of the rotating turbines into electrical energy. River water is used to cool the steam exhausted from the turbines and condense the steam in the secondary loop system back into high purity water. This process is known as non-contact cooling because the river water does not mix with the Station's steam. The condensed high purity water is returned from the condensers to the steam generators to be converted again into steam to continue to drive the turbines The river water that passes through the condensers for non-contact cooling of the secondary steam loop is discharged back to the river.

In addition to the discharge of non-contact cooling water from the circulating water system, the Station discharges other wastewater as discussed in Section VII. All sanitary wastewater generated at the Station is routed to the adjacent Hope Creek Generating Station.

II. REGULATORY BACKGROUND

The Federal Water Pollution Control Act (the "Clean Water Act" or "CWA"), 33 U.S.C. 1251 et seq., authorizes federal and state agencies to regulate discharges of pollutants to surface waters through the National Pollutant Discharge Elimination System("NPDES") permit program. The United States Environmental Protection Agency ("USEPA"), which originally administered the NPDES program for New Jersey, delegated program authority to the New Jersey Department of Environmental Protection ("the Department") in 1982. The Department implements the NPDES program through the New Jersey Pollutant Discharge Elimination System (NJPDES) regulations (N.J.A.C. 7:14A-1 et seq.) which were promulgated pursuant to the authority of the New Jersey Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.).

In 1972, Congress enacted the Clean Water Act (CWA) requiring all point source dischargers of pollutants, including heat, to obtain a permit from USEPA or from a state with delegated permitting authority. Section 316 of the CWA contains parts (a) and (b). Section 316(a) addresses thermal aspects of the discharge. This section provides that a variance from thermal surface water quality standards can be granted if the permittee can demonstrate that a balanced indigenous population is being maintained in the receiving water, meaning less stringent thermal effluent limits may be imposed. Section 316(b) addresses impacts of the cooling water intake structure on aquatic life, namely impingement and entrainment effects. Impingement is when aquatic life is caught on screens entering the facility's intake structure. Entrainment is when aquatic life is withdrawn through the plant, subjected to thermal impacts, and then discharged. Section 316(b) requires that the location, design, construction and capacity of a cooling water intake structure reflect the best technology available (BTA) for minimizing adverse environmental impact. Although the plain language of the Act does not call for economic analysis when requiring BTA, legal precedent has provided that any BTA imposed may not be wholly disproportionate from the environmental benefits to be gained. The Department's Section 316(a) Variance and Section 316(b) determination for this renewal permit are discussed in further detail in Section X within this Fact Sheet.

III. OVERVIEW OF EXISTING JULY 20, 1994 NJPDES PERMIT

Salem's discharges to surface water are regulated pursuant to NJPDES Permit No. NJ0005622. The existing NJPDES permit for this facility was issued to PSE&G-Salem Generating Station on July 20, 1994 and expired on August 31, 1999. Because the permittee submitted a timely renewal application, this permit continues in full force and effect pursuant to N.J.A.C. 7:14A-2.8(a). The existing July 20, 1994 NJPDES permit authorizes the withdrawal of Delaware Estuary water for use in the Salem Station's cooling water processes as well as the discharge of this heated water back to the Delaware Estuary.

In its July 20, 1994 NJPDES permit, the Department granted PSE&G's request for a variance pursuant to Section 316(a) and proposed thermal limits which would allow the continued operation of the existing once-through cooling system. With regard to Section 316(b), the Department determined that "best technology available" consisted of the existing cooling water intake structure, in conjunction with modifications to the intake screens and an improved fish bucket design; a restriction on cooling water intake flow; and a sound deterrent study. The Department also required a variety of other "Special Conditions". To summarize the BTA requirements as well as the Special Conditions, these permit requirements can be grouped under three categories and can be described as follows:

- **Special Conditions Requiring Actions at the Station's Circulating Water Intake Structure Considered to be Best Technology Available** – an intake flow limitation; upgrading of the intake screens to state-of the art standards; and conduct of a study to determine whether sound would be a feasible and an effective technology at Salem to deter fish from the plant's intake screens.

- **Special Conditions Requiring Actions in the Estuary to Produce Fish** – undertake a wetlands program to restore and/or preserve at least 8,000 acres of wetlands, plus 2,000 acres of additional wetlands or 6,000 acres of associated upland buffers, or a combination thereof based on a 1:3 wetlands/uplands buffer acreage ratio. The permit also required a Deed of Conservation Restriction to preserve up to 18,500 acres of lands, wetlands and uplands including the 4,500 acre Bayside Tract. The Permit further required PSE&G to install five fish ladders to eliminate barriers to migration, thus increasing the spawning habitat available to anadromous fish.

- **Special Conditions Requiring Actions to Develop and Implement a Comprehensive Biological Monitoring Program** - requirement to perform baywide abundance monitoring; perform comprehensive monitoring of Salem's thermal plume and an updated assessment of its biological effects; impingement and entrainment monitoring, abundance monitoring for ichthyoplankton and juvenile blueback herring in connection with the fish ladder sites, detrital production and pesticide release monitoring at marsh restoration sites and data generated by sound deterrent studies. The permit also required PSE&G to establish a Monitoring Advisory Committee ("MAC") to provide technical advice to PSE&G concerning the design and implementation of the Company's biological monitoring program and a Management Plan Advisory Committee ("MPAC") to provide technical advice to PSE&G concerning the development and implementation of the wetlands restoration program. These two committees are composed of representatives of federal and state environmental and resource protection agencies, independent scientists and, in the case of MPAC, local governments.

The BTA conditions were incorporated in the July 20, 1994 permit to minimize adverse impacts. Likewise, the Special Conditions were incorporated to further minimize environmental impacts from the Station's cooling water intake structure which is the objective of Section 316(b). These permit conditions are described in further detail in Section X.B. within this Fact Sheet.

After the July 20, 1994 NJPDES permit was issued, the Delaware Natural Resource Environmental Commission (DNREC) and the Delaware Riverkeeper each requested an adjudicatory hearing before the New Jersey Office of Administrative Law to challenge the 1994 Permit. PSE&G thereafter entered into settlement agreements with DNREC and the Delaware Riverkeeper resolving their challenges, and as a result, both entities withdrew their hearing requests. Under the DNREC Settlement, PSE&G agreed, among other matters, to restore a minimum of 3,000 acres of degraded wetlands and acquire up to 2,000 acres of upland buffers in addition to the acreage required in the Permit, and to construct artificial reefs, all in Delaware. These measures were designed to benefit the aquatic populations of the Estuary and provide an expanded wetlands habitat.

Pursuant to the requirements of the NJPDES Regulations at N.J.A.C. 7:14A-1 et seq., PSE&G applied for renewal of its NJPDES permit in March 1999. In addition to the standard regulatory requirements for permit renewal, PSE&G's application specifically requests renewal of the Section 316(a) variance granted in the Station's existing permit. This application also includes a Demonstration pursuant to Section 316(b) relative to the Station's cooling water intake structure. The permittee also provided detailed information to demonstrate its compliance with the Special Conditions in its March 4, 1999 application. This subject draft NJPDES permit action is in response to the March 4, 1999 permit application and its supplemental addendums.

IV. NJDEP'S REVIEW OF THE MARCH 4, 1999 RENEWAL APPLICATION

The March 4, 1999 NJPDES application is voluminous consisting of 36 volumes of application material and 167 volumes of reference material. Numerous staff and management from different NJDEP divisions have come together as a team to review the PSE&G application and inspect the PSE&G wetland restoration sites as related to their progress. This includes Department representatives from the Division of Fish and Wildlife, Land Use Regulation Program, the Division of Water Quality, the Attorney General's office and the Southern Bureau of Water Compliance and Enforcement. Although the Department has the knowledge and expertise to review this application, the Department determined that it would be beneficial to hire an outside contractor to assist in its review of certain portions of the application. As a result, the Department contracted the services of ESSA Technologies, Ltd. of Richmond Hill, Ontario, Canada for those issues associated with Section 316(b) of the Clean Water Act including impingement and entrainment impacts, available intake protection technologies, cost/benefit analysis and the status of fish populations (e.g. predictive and retrospective assessments of power plant impacts to fisheries, biostatistics, fish population dynamics and fisheries economics) in the Delaware Estuary. Overall, the contractor has evaluated the accuracy, completeness and appropriateness of the conclusions reached in the application given the methodologies and data used. The contractor's findings have been documented in a final report (included in its entirety as Attachment A) for the Department where many of their recommendations have been incorporated in this draft permit renewal. Several of the contractor's findings are described in further detail in Section X.B. within this Fact Sheet. In accordance with N.J.A.C. 7:14A-3.1(c)2, PSE&G has reimbursed the Department for this expense as part of its NJPDES permit fee.

During the application review process, the Department has participated in many meetings to listen to the perspectives and technical information brought forth by many different groups and agencies including representatives from environmental groups (NJ Environmental Federation, Delaware Riverkeeper, EAGLE, Eastern Environmental Law Center, UNPLUG Salem, Clean Ocean Action, American Littoral Society), the State of Delaware, US Fish and Wildlife Service, the Delaware River Basin Commission, and USEPA as well as the MPAC and MAC members. Many of these groups have submitted comments on the application. The Department has considered all these comments prior to preparing this draft NJPDES permit renewal. As set forth in N.J.A.C. 7:14A-15.10, the

Department has published a public notice of this draft permit action and is seeking public comments on the draft permit action as described in the Public Notice. Therefore, although many parties have already submitted comments on the application, interested parties also have an opportunity to comment on this draft NJPDES permit.

This NJPDES permit is being issued by the Division of Water Quality; however, input and requirements of other Department divisions are referenced and represented throughout the NJPDES permit document. The facility has been classified as a **major** discharger by the Department of Environmental Protection in accordance with the U.S. EPA rating criteria.

V. OVERVIEW OF DRAFT PERMIT CONDITIONS AND SECTION 316(a) VARIANCE AND 316(b) DETERMINATION

The existing/proposed effluent limitations, effluent sampling analytical data, and other pertinent information are described in the Permit Summary Tables and basis noted herein. Also included is a summary of the basis for each effluent limitation and an evaluation of compliance for each of the Special Conditions set forth in the July 20, 1994 permit. These Special Conditions are required to minimize environmental impacts related to the Station's cooling water system pursuant to Section 316(b) of the Clean Water Act. This proposed draft NJPDES permit renewal carries over and/or revises many of the Special Conditions set forth in the existing July 20, 1994 NJPDES permit. This proposed draft permit action also provides a thermal variance for the discharge from DSN's 481 – 486 based on Section 316(a) of the Clean Water Act. Lastly, this draft permit action sets forth effluent limitations and/or monitoring conditions for several of the point source discharges.

VI. NJDEP PROCEDURES FOR REACHING A FINAL DECISION ON THE DRAFT PERMIT AND NJDEP CONTACT

These procedures are set forth in N.J.A.C. 7:14A-15.1 et seq. and are also described in the public notice. Included in the public notice are requirements for the submission of comments by a specified date, procedures for requesting a hearing and the nature of the hearing, and other procedures for participation in the final Department decision.

Additional information concerning the draft permit may be obtained between the hours of 8:00 A.M. and 5:00 P.M., Monday through Friday from Susan Rosenwinkel, Bureau of Point Source Permitting-Region 2 (609) 292-4860.

VII. DESCRIPTION OF STATION INTAKES, WASTEWATER DISCHARGES AND WASTEWATER COMPONENTS

A. Station Intakes

Circulating Water System Intake

The Circulating Water System Intake is located at the southwestern side of Artificial Island and supplies water to cool the condensers of Salem Units 1 and 2 (refer to B Figure 9). The intake structure includes 12 separate intake bays (six for each of the two Salem units) and is located at the shoreline. The Circulating Water System Intake is comprised of several parts as described below. A diagram of the circulating water intake structure as B Figure 10A.

Ice Barriers - In winter, removable ice barriers are installed on the face of each of the 12 intake bays to prevent damage during severe icing conditions. The barriers are constructed of pressure-treated lumber and structural steel. The ice barriers are removed in early spring and reinstalled in the late fall.

Trash Racks - River water enters the intake bays through fixed bar racks called trash racks that are designed to prevent large floating or submerged debris from entering the system. The trash racks are constructed of half inch wide steel bars on 3.5 inch centers; the size of the clear slot opening is 3 inches. PSEG employees inspect the trash racks and, if required, remove any debris using a mobile clamshell-type mechanical rake. There are two trash rakes which are self-contained and traverse the entire width of the intake. The trash rakes contain a hopper that transports the debris to basket-lined pits at each end of the intake. The removed debris is de-watered by gravity and disposed of off-site.

Traveling Screens – After passing through the trash racks, intake water flows through vertical traveling screens of a modified Ristroph design. The traveling screens have been extensively upgraded over time where there have been three distinct traveling screen designs at Salem. The most recent upgrades were required as a condition of the July 20, 1994 permit and took place in 1995. These upgrades were made to improve performance and reliability and increase the survival rates of impinged fish. The traveling screens are described further in Section X.B. under Compliance with Special Condition 2 in this document.

Fish Return System – Each screen panel has a 10-foot long composite material fish bucket attached to its bottom support member. As the bucket travels over the head sprocket of the traveling screen, organisms slide onto the screen face and are washed by the low-pressure spray system. One low-pressure (less than 10 psi) spray header is located outside the screen unit and two low-pressure (less than 15 psi) spray headers and nozzles are located inside the screen unit. The spray is washed into an upper fiberglass (18 by 30 inch) trough. This low-pressure wash is designed to minimize descaling and other injuries that could occur with conventional high-pressure spray headers. As the panel rotates to the fish removal position, the spray wash water helps to slide fish on the screen surface over a flap seal into a bi-directional fish trough. As the panels continue to travel, the remaining debris is removed into a bi-directional debris trough using two inside high-pressure (90 psi) spray headers with spray nozzles. The fish and debris troughs are joined after the troughs leave the building. Fish and debris washed from the screens are returned through bi-directional troughs to the Estuary on either the north or south side of the intake, depending upon the direction of tidal flow. The troughs are bi-directional in that they are emptied in the direction of the tide, so that fish and debris will flow away from the circulating water intake structure, in an effort to minimize the likelihood of reimpingement. The troughs are also designed to allow diversion to the respective fish counting pool for impingement studies. A diagram of the vertical traveling screen is included as B Figure 11.

Service Water System Intake
The service water system is a safety-related cooling water system that supplies a dependable, continuous flow of cooling water (under normal and emergency conditions) to the nuclear and turbine area heat exchangers. Service water is withdrawn from the estuary through an intake located approximately 400 feet north of the CWS intake. The service water system intake has trash racks and traveling screens, where debris is collected to prevent interference with pump or heat exchanger operation. To dislodge collected debris, the traveling screens are backwashed with service water. The backwash water and debris are discharged into a trough and directed through trash baskets back to the estuary. The intake water then passes through the service water pumps to the service water strainers which are designed to remove small particles from the intake water to prevent clogging and damage to the heat exchangers in the service water system. Service water is discharged to the estuary via connections to the CWS pipes. The traveling screens on the service water intake do not have a modified Ristroph design or a fish return system as do the traveling screens on the CWS. During normal Station operations, the four service water pumps nominally provide 41,200 gallons per minute. The service water intake flow is approximately 4% of Salem's circulating water system intake flow.

B. Station Outfalls and Discharge Components

Discharge and Thermal Monitoring Points – A schematic is included as B Figure 31. A tabular summary of each outfall and its components is included below followed by a description.

DSN	Latitude	Longitude	Name of Operation or Process	Monthly Avg. Flow in MGD (Appl.)
481	39º 27' 38"	75º 32' 16"	Primarily non-contact cooling water	502
482	39º 27' 38"	75º 32' 16"	Primarily non-contact cooling water	476
483	39º 27' 38"	75º 32' 16"	Non-contact cooling water	466
484	39º 27' 38"	75º 32' 16"	Primarily non-contact cooling water	467
485	39º 27' 38"	75º 32' 16"	Primarily non-contact cooling water	426
486	39º 27' 38"	75º 32' 16"	Non-contact cooling water	456
FAC A	N/A – Thermal Monitoring	N/A – Thermal Monitoring	Thermal Loading for Unit 1, namely DSN's 481, 482 and 483.	N/A
FAC B	N/A – Thermal Monitoring	N/A – Thermal Monitoring	Thermal Loading for Unit 2, namely DSN's 484, 485 and 486.	N/A
FAC C	N/A – Thermal Monitoring	N/A – Thermal Monitoring	Intake Flow Limit and Thermal Loading for Units 1 and 2.	N/A
48C	N/A – Internal Point	N/A – Internal Point	Intermittent batch type discharge to DSN's 481, 482, 484, or 485.	0.0155

487	39° 27' 46"	75° 32' 17"	North Yard Drain	0.013
DSN	Latitude	Longitude	Name of Operation or Process	Monthly Avg. Flow in MGD (Appl.)
487B	N/A – Internal Point	N/A – Internal Point	#3 Skim Tank: discharge to DSN 487 on an emergency basis.	Emergency Only
488	39° 27' 41"	75° 32' 12"	West Yard Drain	2.3
489	39° 27' 40"	75° 32' 00"	South Yard Drain	0.09
490	39° 27' 40"	75° 31' 52"	Yard Drain	None
491	39° 27' 40"	75° 31' 50"	East Yard Drain	0.014

DSN's 481 – 486

Outfalls for DSN's 481 - 486 - The Station is designed to discharge, at a maximum, approximately 3200 MGD of once-through, non-contact condenser cooling water through six submerged pipes or outfalls designated as Discharge Serial Numbers (DSN's) 481 – 486. The pumps and piping are designed to discharge water to the Estuary at a velocity of 10.5 feet per second at a depth of 31 feet below the surface at mean low tide. The six 120 inch discharge pipes (three from each unit) designated as DSN's 481 – 486 run along the riverbed from the shoreline toward the middle of the Estuary, and are buried for most of their length. The pipes run for a distance of approximately 500 feet from the Station bulkhead, nearly directly westward beneath the Estuary. At their western end, the pipes discharge nearly horizontally into the Estuary, perpendicular to the dominant flow. At the discharge point, the pipes are located at a depth of about 30 feet.

Discharge Components of DSN's 481 – 486 - The discharge flow from DSN's 481-486 is composed primarily of wastewater used as once-through condenser cooling water from the circulating water system as well as the service water system; however, DSN's 481, 482, 484 and 485 periodically include a limited contribution of flow from the radioactive liquid waste system and non-radioactive liquid waste system (which is monitored internally as DSN 48C).

Circulating Water System - As described previously under the section entitled **Facility Overview**, intake water from the river passes through the condensers for non-contact cooling of the secondary steam loop and is discharged back to the river through DSN's 481 - 486. This once-through cooling water from the circulating water system comprises the majority of the flow through DSN's 481 – 486. Treatment chemicals are not added to this once-through condenser cooling water.

Service Water System - As described previously, the service water system is a nuclear safety-related system where its discharge is classified as a low volume waste stream pursuant to 40 CFR 423. Past history has demonstrated that macroinvertebrate fouling does occur in the system. Sodium hypochlorite is continuously added at the suction of the service water pumps (at a target concentration of 500 ug/L), so residual chlorine may be present in the eventual discharge through DSN's 481, 482, 484 and/or 485. As described in Appendix B of the March 4, 1999 NJPDES/DSW permit application, the service water system is designed to allow the addition of liquid sodium hypochlorite at the suction of each operating service water pump by the variable displacement pumps. The circulating water system effluent residual chlorine monitor provides an electronic signal to the sodium hypochlorite injection pumps to shut down the addition of sodium hypochlorite prior to exceeding the residual chlorine effluent limitations for DSN's 481 – 486.

Radioactive Liquid Waste System – Effluent from the radioactive liquid waste system (also known as monitor tank effluent) discharges through DSN's 481, 482, 484 and/or 485. The radioactive liquid waste system collects system leakage, floor drains, equipment leakage, decontamination liquids, wash waters, system drains, ventilation system drains, laboratory drains and sample wastes from areas of the Station which contain or may contain radioactive materials. These waste streams may also contain trace quantities of organics, analytical laboratory chemicals, decontamination solutions, or normal housekeeping and cleaning products. The typical chemicals used within the system potentially draining to this system include low concentrations of chromates, hydrazine and boron.

The radioactive liquid waste system segregates, collects, processes, provides monitoring capability, recycles, and discharges waste streams that potentially contain radioactivity from various Station processes within the power generation area during normal operations, maintenance evolutions and transient conditions. PSE&G states in its application that the effluent from the radioactive liquid waste system is normally discharged in a batch mode only after being collected in waste tanks, sampled for radioactivity, sampled for potential chemical contaminants, and the calculations are performed to ensure effluent limitations are met. PSE&G is responsible to the United States Nuclear Regulatory Commission (USNRC) for compliance with radiological effluent limitations, associated monitoring requirements and other licensing requirements. The radioactive liquid waste system flow is a minimal component of the total effluent volume at DSN's 481, 482, 484 and/or 485. Solids created by the treatment of these liquid waste streams in the radioactive liquid waste system are radioactive waste and are transported to a facility licensed by the USNRC for disposal in accordance with USNRC requirements.

DSN 48C – Non-Radioactive Liquid Waste Disposal System (NRLWDS)

DSN 48C is an internal low volume waste stream that discharges on a batch-type basis into DSN's 481, 482, 484 and/or 485. The purpose of the NRLWDS is the collection and treatment of secondary plant waste water which may contain chemicals, especially acidic and caustic wastewater before discharge. The NRLWDS processes and treats the non-radioactive low volume wastes from various Station processes including:

- Regenerant waste from demineralizers used to produce ultrapure water at Salem and at the adjacent Hope Creek Generating Station. These waste streams contain dilute acid and caustic regenerants as well as the impurities removed from the Station's well water (i.e. groundwater is also a source of water for the Station).

- Waste from chemical unloading area drains; chemical feed tank drains and floor drains; the demineralizer area sump; the number 3 oil water skimmer; and drains from the acid and caustic area and ammonium hydroxide filling connections. The chemical unloading area drains can contain residuals due to leakage or spillage during acid or caustic truck transfers as well as precipitation. The chemical feed tanks are utilized for handling and adding feedwater treatment chemicals, primarily ammonium hydroxide, hydrazine, and ethanolamine. The tank drains, tank overflows and floor drains may contain residual treatment chemicals or wash water containing dilute cleaning agents. Effluent from the number 3 oil skimmer may contain house heating boiler treatment chemicals. The demineralizer sumps collect leakage; spillage; overflows; floor drains; service water sampling; venting and leakage; analytical laboratory drains from the demineralizer plant; and tank drainage from the acid and caustic storage areas. The waste from floor drains may also contain small amounts of cleaning solutions and lubricants.

- Waste from secondary analytical laboratory drains and in-line instrumentation that measures the purity of process water in the feedwater cycle. This small volume waste stream consists primarily of pure water with analytical reagents and treatment chemicals.

- Steam generator blowdown can be an influent to the NRLWDS, but is normally directed to the condensers for reuse in the system. Steam generator blowdown and drainage contains ammonium hydroxide, hydrazine (most of which is converted to ammonia at operating temperatures), ethanolamine, trace minerals and metals.

- Recycled water and discharge from NRLWDS vents, drains, analytical laboratory, and floor drains. This influent is essentially NRLWDS wastewater and has the potential to contain the same constituents as the other influents to the NRLWDS as well as NRLWDS treatment chemicals.

- Regenerant wastes from the condensate polishers where the condensate polishers remove impurities by demineralization from the steam cycle condensate water. Because these polishers are regenerated using dilute acid and caustic, the regenerant wastes contain dilute acids and caustics, impurities removed by demineralization, and residual treatment chemicals.

Influents to the NRLWDS are collected in the equalization mixing basin where some self-neutralization of the dilute acid and caustic waste occurs. If necessary, the wastestream may be treated with sodium hypochlorite or hydrogen peroxide to reduce the concentrations of ammonia and hydrazine. The wastestream is then normally routed through the No. 2 clarifier for solids removal by settling; the mix tank for pH adjustment to induce precipitation of any remaining metals; the No. 1 clarifier for final clarification and metals precipitation; and is then discharged through DSN 48C which is routed to DSN's 481, 482, 484 and/or 485. Sodium hypochlorite or hydrogen peroxide can be added in the equalization basin or other points within the system to facilitate the reduction of treatment chemical concentrations prior to discharge. Either or both clarifiers can be bypassed, depending on wastestream quality. The mix tank normally is used for the addition of caustic to facilitate precipitation of metals and the capability has been installed, although it is not normally used, for the addition of a coagulant aid. The mixed media filter skid is installed but not normally used. A schematic of the non-radioactive cooling water system is shown as B Figure 25.

Although the NRLWDS is designed for treatment of non-radioactive wastes, very low levels of radioactive materials can enter the system. The primary source of radioactive materials in the system is from regeneration of the condensate polisher resins. DSN 48C is a USNRC monitored pathway.

Solids generated in the NRLWDS are collected in the sludge pit, the clarifiers, or the equalization basin and are analyzed prior to disposal to determine the appropriate disposition of the residual wastes. Historically, the wastes have been classified as radioactive (due to low levels of radioactivity which enter the system and concentration in the residual) requiring disposal in a USNRC approved facility.

DSN 487

DSN 487 is the North Yard Drain where the discharge components consist of river water influx, precipitation runoff, building roof drains, floor drains (from the fire pump and fresh water tank), sump pumps, No. 2 turbine building flood pump, and the emergency discharge from DSN 487B. The primary contributor to the effluent flow is the river water influx due to the low elevation of the Station. The No. 3 skim tank (formerly DSN 487B) has been rerouted to discharge to the influent of the NRLWDS as required in the existing July 20, 1994 NJPDES permit. However, a discharge point has been retained for the No. 3 skim tank to discharge through DSN 487 in the event of an emergency where this emergency path is identified as DSN 487B. Although it is not anticipated that routine discharge through this emergency path will occur, the provision is necessary to ensure the oils on the top of the No. 3 skim tank are not released overland in the event of a pump failure. The No. 3 skim tank is a gravity separator designed to remove oils prior to discharge to the NRLWDS.

DSN 489

DSN 489 is the South Yard Drain where the discharge components consist of precipitation runoff, building roof drains, #1 and #2 skim tanks, power transformer sumps, auxiliary power transformer sumps, turbine building floor drains and turbine building sump pumps. These components are routed through one of the two 40,000 gallon Highland Oil Water Separators that are installed in parallel. Only one oil water separator is normally in service. The oil/water separator system was installed in accordance with the requirements of the July 20, 1994 permit, specifically section G.2, Part IV.

DSN's 488, 490 and 491

DSN 488 is the West Yard Drain which is located within the secure perimeter of the Station. Yard drains are the term used for the systems designed to collect and transport precipitation runoff and consist primarily of grated inlets and piping. Due to the low elevation of the Station, the primary contributor to flow through DSN 488 is the tidal river water influx with the service water strainer backwash being the next major contributor. Other discharge components include precipitation runoff, building roof drains, building floor drains, sump pumps, #1 turbine building floor pump, the service water sump pumps, residual chlorine analytical wastewater, and circulating water system vents.

DSN 490 and 491 are external storm drainage systems that are located outside the secure perimeter of the Station. Discharges through these outfalls consist solely of precipitation runoff from areas of the property not associated with an industrial process area. DSN 490 discharges precipitation runoff from the area of the helicopter landing pad. DSN 491, the East Yard Drain, discharge precipitation runoff from the employee parking lot and an adjacent access road.

FAC A, B and C

FAC A, B and C are not physical outfalls but instead enable regulation of specific parameters as a sum. Specifically, FAC A designates the discharge from Unit 1 (namely DSN's 481, 482, and 483) whereas FAC B designates the discharge from Unit 2 (namely DSN's 484, 485 and 486). FAC C designates the discharge from the "facility" namely the discharges from Units 1 and 2 (DSN's 481 – 486). These designators are used to enable regulation of intake, effluent and differential temperature for FAC A and FAC B and intake flow and heat for FAC C.

VIII. DESCRIPTION OF LIMITATIONS AND CONDITIONS SPECIFIC TO THIS PERMIT

DSN's 481 – 486

Effluent Flow: The monitoring conditions for **Effluent Flow** are applied pursuant to N.J.A.C. 7:14A-13.13 and 13.14 and are consistent with the existing permit. Effluent flow shall be calculated on a daily basis for DSN's 481 – 486. The calculation procedures for the purposes of DMR reporting are described in further detail in Part IV.

Effluent Temperature: Monitoring for **Effluent Temperature** is consistent with the existing permit and is required pursuant to N.J.A.C. 7:14A-13.19. Monitoring for effluent temperature for each individual outfall shall occur on a continuous basis. Monitoring and reporting of effluent temperature is necessary to calculate compliance with limitations and conditions imposed for FAC A, B, and C as described later.

Chlorine Produced Oxidants: Effluent limitations and monitoring conditions **Chlorine Produced Oxidants** are consistent with the existing permit and are required pursuant to N.J.A.C. 7:14A-13.19. The existing permit specifies effluent limitations and monitoring conditions for Total Residual Chlorine; however, Chlorine Produced Oxidants is simply a more appropriate name for the compounds which the total residual chlorine analytical method measures. Therefore, the total residual chlorine analytical method can be used for compliance purposes for chlorine produced oxidants limitations and monitoring requirements. As described previously, the circulating water system flow, which comprises the most significant portion of the flow through DSN's 481 – 486, is not continuously chlorinated. However, the service water system component of the flow, that is also discharged through DSN's 481 – 486, is continuously chlorinated. Under normal operating conditions, service water system non-contact cooling water is discharged.

When service water system non-contact cooling water is discharged, an effluent limitation of 0.5 mg/L shall apply as a daily maximum and an effluent limitation of 0.3 mg/L shall apply as a monthly average. These limitations are applied at DSN's 481 – 486. Monitoring is required three times per week when service water system water is discharged. **At all other times (i.e. the discharge of circulating water system water non-contact cooling water along with service water system non-contact cooling water)**, a daily maximum effluent limitation of 0.2 mg/L is applied in accordance with N.J.A.C. 7:14A-13.19 where this limit is consistent with the existing permit. A monthly average reporting requirement is also applied when service water system non-contact cooling water is not being discharged. Monitoring is required three times per week.

Should the permittee determine in the future that it is necessary to chlorinate the circulating water system, the Department shall be notified as described in Part IV. As part of this notification, the permittee shall provide the Department with a methodology for sodium hypochlorite addition. Upon approval by the Department in writing, chlorine produced oxidants may not be discharged from any single generating unit for more than two hours per day. Also, chlorine produced oxidants at the permitted outfalls DSN's 481 – 486 shall not exceed a daily maximum of 0.2 mg/L during the chlorination of the main condensers. The permittee shall maintain a log, noting the time and duration of chlorination of the main condensers.

pH: Monitoring for **pH** is consistent with the existing permit and is required pursuant to N.J.A.C. 7:14A-13.19. Monitoring for pH shall be performed three times per week using a grab sample. The daily minimum pH of the effluent shall not be less than 6.0 standard units (S.U.) and the daily maximum pH shall not be greater than 9.0 S.U.. Monitoring for intake pH is also required. If the intake pH is less than 6.0 S.U. the daily minimum pH limitation shall be equivalent to the measured intake pH. If the intake pH is greater than 9.0 S.U., the daily maximum pH limitation shall be equivalent to the measured intake pH.

Whole Effluent Toxicity (WET): Section 101(a) of the Clean Water Act (CWA) establishes a national policy of restoring and maintaining the chemical, physical and biological integrity of the Nation's waters. In addition, section 101(a)(3)of the CWA and the State's Surface Water Quality Standards (SWQS) at N.J.A.C. 7:9B-1.5(a)3 state that the discharge of toxic pollutants in toxic amounts is prohibited. Further, 40 CFR 122.44(d) and N.J.A.C. 7:14A-13.6(a) require that where the Department determines that a discharge causes, shows a reasonable potential to cause, or contributes to an excursion above the SWQS, the permitting authority must establish effluent limits for WET. In order to satisfy the requirements of the CWA, the State's SWQS and the NJPDES Regulations, the need for a water quality based effluent limitation (WQBEL) for WET was evaluated for this discharge.

In order to assess the toxicity effects of the circulating water system as well as the effects of DSN 48C and the other wastewater components, the permittee is required to perform acute toxicity testing on a minimum of one representative circulating water system outfall, namely DSN's 481, 482, 484 and/or 485, while DSN 48C effluent is routed to this outfall during sample collection.

The test species to be used for determining permit compliance with the acute WET limit of an LC50≥ 50% effluent shall be the sheepshead minnow (*Cyprinodon variegatus*). The monitoring frequency for acute toxicity has been reduced from quarterly to twice each year in accordance with 7:14A-14.2(c) based on consistent compliance with the applicable WET limit.

The **Toxicity Reduction Implementation Requirements** (TRIR) are included in accordance with N.J.A.C. 7:14A-13.17(a), 7:14A-6.2(a)5 and recommendations in Section 5.8 of the TSD. The requirements are necessary to expedite compliance with the acute WET toxicity limitation should exceedances of the acute WET limitation occur. As included in section B.1 of the TRIR requirements, the initial step of the TRIR is to identify the variability of the effluent toxicity and to verify that a consistent toxicity problem does in fact exist.

Effluent samples for conducting WET testing for acute testing are to be collected after the last treatment step, consistent with collection location for other parameters. The permittee is required to collect samples for the purpose of acute toxicity testing at a minimum of one representative circulating water system outfall, namely DSN's 481, 482, 484 and/or 485. During sample collection, for the purposes of acute toxicity testing, DSN 48C effluent shall be routed to this representative outfall.

The permittee has recently completed a comprehensive site-specific **chronic toxicity characterization test**. The test species methods used for this chronic toxicity testing was the Sheepshead Minnow (*Cyprinodon variegatus*) and the *Mysidopsis bahia.* All tests conducted for this study were >100% for both growth and survival.

Other Parameters: Effluent limitations have not been imposed for **total organic carbon, total suspended solids, ammonia and petroleum hydrocarbons**. These parameters were included as part of the effluent characterization study (as described below). Based on the results of this study, the Department has determined that they are not present in quantities substantially different from the influent. In addition, given that the primary component of DSN's 481 – 486 is once-through cooling water, it is not expected that these parameters would be present in significant quantities in the effluent.

DSN's FAC A and FAC B

As described previously, FAC A designates the discharge from Unit 1 (DSN's 481, 482, and 483) whereas FAC B designates the discharge from Unit 2 (DSN's 484, 485 and 486).

The effluent temperature values measured continuously at the individual outfalls for DSN's 481 – 486 shall be utilized in calculating flow-weighted **Effluent Temperature values for FAC A and FAC B** as described in Part IV. Effluent flow is required to be monitored at outfalls 481 – 486 where these values shall be used in any flow-weighted calculation procedure. Monitoring for effluent temperature shall be calculated as the flow-weighted average for FAC A and FAC B as described in the effluent limitations tables for FAC A and FAC B in Part IV. A daily maximum effluent temperature limitation of 46.1 degrees Celsius (115 degrees Fahrenheit) is imposed for FAC A and FAC B based on the Section 316(a) Determination which is described and justified in further detail in Section V.B. later in this Fact Sheet. Monthly average reporting is also required for effluent temperature for FAC A and FAC B. These limitations and monitoring conditions are consistent with the existing permit pursuant to N.J.A.C. 7:14A-13.19.

A continuous monitoring condition for **Intake Temperature** is carried forward from the existing permit pursuant to N.J.A.C. 7:14A-13.19. Intake temperature shall be measured at the intake to the main circulating water system for Units 1 and 2 on a continuous basis and shall be averaged daily to obtain the intake temperature for FAC A and for FAC B. The calculated intake temperature values shall be reported as both a daily maximum and a monthly average. In the event that one of the temperature monitoring devices is out of service (such as for calibration and maintenance) the other temperature monitoring device will be used for reporting intake temperature for FAC A and FAC B.

DSN FAC C

As described previously, FAC C represents the "facility" namely the discharges from Unit 1 and Unit 2 which are designated as DSN's 481 – 486. **Intake flow** is limited to a monthly average of 3024 million gallons per day total intake for DSN's 481 – 486 as specified in Part IV. This limit is consistent with the existing July 20, 1994 NJPDES permit where it was imposed as part of the Section 316(b) Demonstration Special Conditions. Intake flow shall be measured as the sum of the twelve individual intakes to the circulating water system and reported as a monthly average in million gallons per day. The flow of each individual circulating water pump shall be calculated as the product of the number of operating hours for that pump for the reporting period and the flow rate for that pump as indicated in item G.1. of Part IV. The flow rate for each respective pump shall be calculated in accordance with **annual tracer evaluation studies** as described in Part IV.

The total thermal discharge or **"Heat"** for the facility is limited as 30,600 million BTU's per hour as a monthly average. This limit is consistent with the existing permit. The calculation procedure is provided in Part IV.

<u>**DSN 48C**</u>

The effluent limitations and/or monitoring requirements for **Flow**, **Petroleum Hydrocarbons, Total Organic Carbon, Total Suspended Solids** and **Ammonia** have been retained from the existing permit in accordance with N.J.A.C. 7:14A-13.19. The monitoring frequency of "daily" for flow and "twice per month" for petroleum hydrocarbons, total organic carbon, total suspended solids and ammonia have also been retained from the existing permit. Although the permittee has demonstrated consistent compliance with the effluent limitations, the Department has determined that it is appropriate to retain the "twice/month" monitoring frequency given the potential contaminants and level of treatment for this wastestream.

<u>**DSN 487B**</u>

The effluent limitations and/or monitoring requirements for **Flow, Effluent Temperature, Petroleum Hydrocarbons, Total Organic Carbon, Total Suspended Solids** and **pH** have been retained from the existing permit in accordance with N.J.A.C. 7:14A-13.19. The monitoring frequency of "once/batch" is still appropriate and has therefore also been retained.

<u>**DSN 489**</u>

The effluent limitations and/or monitoring requirements for **Flow**, **Petroleum Hydrocarbons**, **Total Organic Carbon**, **Total Suspended Solids** and **pH** have been retained from the existing permit in accordance with N.J.A.C. 7:14A-13.19. The monitoring frequency of "monthly" is still appropriate and has therefore also been retained from the existing permit. The Department has eliminated the weekly average effluent limitation of 45 mg/L for this outfall based on the types of discharge components routed to this outfall, the continued imposition of a monthly monitoring frequency (as opposed to weekly), and consistent compliance with the daily maximum and monthly average limits.

<u>**DSN's 481-486, 48C, 487 and 489 - Monitoring Requirements**</u>

Monitoring frequencies and sample types are in accordance with N.J.A.C. 7:14A-14, unless specified otherwise above. The permittee may submit a written request for a modification of the permit to decrease monitoring frequencies for any parameters listed in Part III-B/C for DSNs 481-486, 48C, 487B and 489 if site specific conditions indicate the applicability of such a modification. Conditions governing requests for a reduction in monitoring frequency are provided in N.J.A.C. 7:14A-14.2.

<u>DSN's 481-486, 48C and 489 - Effluent Characterization Study</u>

As required in the July 20, 1994 NJPDES permit, the permittee was required to complete an effluent characterization study. This study was completed in two phases and a summary of the data from both phases has been included as Table 1. Based on the results of this study, the Department has determined that additional effluent limitations and/or monitoring requirements are not necessary at this time.

<u>DSN's 488, 490, 491 - Stormwater Pollution Prevention Plan</u>

The Department has determined that chemical-specific effluent limitations and/or monitoring requirements are not necessary for DSN's 488, 490 and 491 at this time. This determination is based on the fact that stormwater discharged through these outfalls does not typically come into contact with industrial processes.

IX. PERMIT SUMMARY TABLES

Facility: PSEG - Salem **Latitude: 39° 27' 38"** **Classification: Zone 5**
Receiving Stream: Delaware Estuary **Longitude: 75° 32' 16"** **WQMP Basin 17/Delaware River Basin**
Wastewater Type: DSN's 483 and 486: once-through cooling water only
DSN's 481-482, 484-485: once-through cooling water, non-radioactive liquid waste disposal system effluent and radioactive liquid waste effluent

Application data for DSN's 481 – 483: analytical results for effluent flow, residual chlorine and pH are specific to this outfall. Flow is representative of average flow during power operations of at least one unit to ensure that flow rate is representative of normal plant operations. Analytical results for effluent temperature are representative of the flow weighted effluent temperature for Unit 1, DSN's 481 – 483. Analytical results for conventional pollutants are a composite of the results for DSN 484-486. All other analytical results are a composite of the results for DSN 484 and 486.

Application data for DSN's 484 – 486: analytical results for effluent flow, residual chlorine and pH are specific to this outfall. Flow is representative of average flow during power operations of at least one unit to ensure that flow rate is representative of normal plant operations. Analytical results for effluent temperature are representative of the flow weighted effluent temperature for Unit 2, DSN's 484 – 486. Analytical results for conventional pollutants are a composite of the results for DSN 484-486. All other analytical results are a composite of the results for DSN 484 and 486.

Parameter All units in mg/l (kg/day) unless otherwise noted		*Application: DSN 481*	*Application: DSN 482*	*Application: DSN 483*	*Application: DSN 484*	*Application DSN 485*	*Application: DSN 486*	Existing NJPDES/DSW Permit limits for **DSN's 481-486**	NJPDES/ DSW DMR 1/99 – 6/00	Other	Draft Permit Limits for **DSN's 481-486 applied at each outfall**
Effluent Flow, MGD	avg.	*502*	*476*	*466*	*467*	*426*	*456*	NL	450	NL	NL*
	max.	*542*	*492*	*560*	*558*	*505*	*543*	NL	554	NL	NL*
	data pts	*425*	*425*	*425*	*547*	*547*	*547*		108		
Intake Flow, MGD	'avg.	-	-	-	-	-	-	See FAC C	-	-	See FAC C
	'max.	-	-	-	-	-	-		-	-	
Summer Temperature – INTAKE, °C, (°F)	avg.	*24.3*	*24.3*	*24.3*	*24.3*	*24.3*	*24.3*	NL	See FAC A	-	See FAC A and B
	data pts	*106*	*106*	*106*	*137*	*137*	*137*	NL	and B	-	
Summer Temperature – EFFLUENT, °C, (°F)	avg.	*25.3*	*25.3*	*25.3*	*26.2*	*26.2*	*26.2*	See FAC A	See FAC A	-	NL*
	max.	*36.8*	*36.8*	*36.8*	*37.6*	*37.6*	*37.6*	and B	and B	-	NL*
	data pts	*106*	*106*	*106*	*137*	*137*	*137*				
Winter Temperature – INTAKE, °C, (°F)	avg.	*9.4*	*9.4*	*9.4*	*9.4*	*9.4*	*9.4*	NL	See FAC A	-	See FAC A and B
	data pts	*319*	*319*	*319*	*410*	*410*	*410*	NL	and B	-	
Winter Temperature – EFFLUENT, °C, (°F)	avg.	*12.6*	*12.6*	*12.6*	*12.2*	*12.0*	*12.0*	See FAC A	See FAC A	-	NL*
	max.	*32.8*	*32.8*	*32.8*	*33.4*	*33.3*	*33.4*	and B	and B	-	NL*
	data pts	*319*	*319*	*319*	*410*	*410*	*410*				

Parameter All units in mg/l (kg/day) unless otherwise noted		*Appli-cation DSN 481*	*Appli-cation: DSN 482*	*Appli-cation: DSN 483*	*Appli-cation: DSN 484*	*Appli-cation: DSN 485*	*Appli-cation: DSN 486*	Existing NJPDES/DSW Permit limits for **DSN's 481-486**	NJPDES/DSW DMR 1/99 – 12/99	Other	Draft Permit Limits for **DSN's 481-486 applied at each outfall**
Temperature – Difference, °C (°F)	avg. max.	- -	- -	- -	- -	- -	- -	See FAC A and B	See FAC A and B	- -	See FAC C
Heat, Facility MBTU/hour	avg. max.	- -	- -	- -	- -	- -	- -	See FAC C	See FAC C	- -	See FAC C
Chlorine Produced Oxidants, mg/L – During discharge of service water	avg. max. data pts	*<0.1* *0.3* *639*	*<0.1* *0.3* *639*	*<0.1* *0.3* *639*	*<0.1* *0.4* *639*	*<0.1* *0.3* *639*	*<0.1* *0.3* *639*	0.3 0.5	0.1 0.4 7 det./4 ND	- -	0.3 0.5
Chlorine Produced Oxidants, mg/L – During discharge of circulating water	avg. max. data pts	*<0.1* *0.3* *639*	*<0.1* *0.3* *639*	*<0.1* *0.3* *639*	*<0.1* *0.4* *639*	*<0.1* *0.3* *639*	*<0.1* *0.3* *639*	NL 0.2	<0.1 0.1 89	- -	NL 0.2
Intake pH, standard units	Min. Max. data pts	*6.4* *8.4* *213*	*6.4* *8.4* *213*	*6.4* *8.4* *213*	*6.4* *8.4* *213*	*6.4* *8.4* *213*	*6.4* *8.4* *213*	NL NL	7 8.3 108	- -	NL NL
Effluent pH, standard units	min. max. data pts	*6.2* *8.3* *213*	*6.2* *8.2* *213*	*6.2* *8.3* *213*	*6.2* *8.2* *213*	*6.2* *8.3* *213*	*6.2* *8.2* *213*	6.0 9.0	6.6 9.4 143	6.0[2] 9.0[2]	6.0 9.0
Acute Toxicity, LC50 (% effluent)	min max. data pts	-- --	-- --	-- --	-- --	-- --	-- --	50 --	>100 >100 6	- -	50 – Daily Min. for DSN's 481, 482, 484 and/or 485
Total Organic Carbon, mg/L	avg. max. data pts	*4.1* *8.7* *15*	*4.1* *8.7* *15*	*4.1* *8.7* *15*	*4.1* *8.7* *15*	*4.1* *8.7* *15*	*4.1* *8.7* *15*	- -	- -	- -	- -
Effluent Total Suspended Solids, mg/L	avg. max. data pts	*116* *202* *15*	*116* *202* *15*	*116* *202* *15*	*116* *202* *15*	*116* *202* *15*	*116* *202* *15*	- -	- -	- -	- -
Influent Total Suspended Solids, mg/L	avg. data pts	*222* *15*	*222* *15*	*222* *15*	*222* *15*	*222* *15*	*222* *15*	- -	- -	- -	- -
Ammonia, mg/L	avg. max. data pts	*0.1* *0.3* *10*	*0.1* *0.3* *10*	*0.1* *0.3* *10*	*0.1* *0.3* *10*	*0.1* *0.3* *10*	*0.1* *0.3* *10*	- -	- -	35 [2] -	- -
Petroleum Hydrocarbons, mg/L	avg. max. data pts	*<1.3* *<1.3* *15*	*<1.3* *<1.3* *15*	*<1.3* *<1.3* *15*	*<1.3* *<1.3* *15*	*<1.3* *<1.3* *15*	*<1.3* *<1.3* *15*	- -	- -	10[3] 15[3]	- -

Footnotes for Permit Summary Tables for DSN's 481-486

A comprehensive effluent characterization study was performed, as required in the July 20, 1994 permit, for conventional, non-conventional and toxic parameters including intake samples. The results of this study were described previously in this Fact Sheet.

DMR data is a summary of DSN's 481-486.

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required
MGD denotes million gallons per day

* *Effluent flow and effluent temperature shall be monitored continuously.* For the purposes of reporting this data on discharge monitoring reports as well as for any calculation procedure, the permittee shall summarize the values measured during the course of a calendar day consistent with the definition of daily discharge at N.J.A.C. 7:14A-1.2. The daily discharge values that are tracked over a period of a calendar month shall be averaged for the purposes of DMR reporting of a monthly average. The maximum of these daily discharge values shall be reported on the monthly DMR as the daily maximum.

[1] Data from NJPDES Permit renewal application dated 3-4-99.
[2] Water Quality Regulations of the Delaware River Basin Commission.
[3] N.J.A.C. 7:14A-12.

Facility: **PSEG – Salem** **Discharge Serial Number (DSN): FAC A (DSN's 481 – 483)**
Wastewater Type: Heat Limitations for Unit 1

Parameter All units in mg/l (kg/day) unless otherwise noted		Existing NJPDES/DSW Permit limits for **FAC A**	NJPDES/DSW DMR 1/99-6/00	Draft Permit Limits for **FAC A**
Temperature – Intake*, °F (°C)	avg. max. data pts	NL NL	(15.8) (30.2) 12	NL NL
Temperature – Effluent**, °F (°C) June 1 – Sept. 30	avg. max. data pts	NL 115 (46.1)	(32.4) (37.3) 4	NL 115 (46.1)
Temperature – Effluent**, °F (°C) October 1 – May 31	avg. max. data pts	NL 110 (43.3)	(17.9) (30.6) 8	NL 110 (43.3)
Differential Temperature***, °F (°C)	avg. max. data pts	NL NL	(6.9) (10.1) 12	NL 27.5 (15.3)

Facility: **PSEG – Salem** **Discharge Serial Number (DSN): FAC B (DSN's 484 – 486)**
Wastewater Type: Heat Limitations for Unit 2

Parameter All units in mg/l (kg/day) unless otherwise noted		Existing NJPDES/DSW Permit limits for **FAC B**	NJPDES/DSW DMR 7/99-6/00	Draft Permit Limits for **FAC B**
Temperature – Intake*, °F (°C)	avg. max. data pts	NL NL	(15.8) (30.2) 12	NL NL
Temperature – Effluent**, °F (°C) June 1 – Sept. 30	avg. max. data pts	NL 115 (46.1)	(34.1) (38.5) 4	NL 115 (46.1)
Temperature – Effluent**, °F (°C) October 1 – May 31	avg. max. data pts	NL 110 (43.3)	(19.3) (30.8) 8	NL 110 (43.3)
Differential Temperature***, °F (°C)	avg. max. data pts	NL NL	(8.5) (10.8) 12	NL 27.5 (15.3)

Footnotes for FAC A and FAC B – Requirements are described in Part IV.

* The intake temperatures from Units 1 and 2 shall be averaged to obtain the intake temperature for FAC A. For the purposes of reporting this data on discharge monitoring reports as well as for any calculation procedure, the permittee shall summarize the intake temperature values measured during the course of a calendar day consistent with the definition of daily discharge at N.J.A.C. 7:14A-1.2. The daily discharge values that are tracked over a period of a calendar month shall be averaged for the purposes of DMR reporting of a monthly average. The maximum of these daily discharge values shall be reported on the monthly DMR as the daily maximum.

** Effluent temperature shall be measured at DSN's 481 - 486 on a continuous basis where effluent temperature for FAC A and FAC B shall be calculated as follows:

Effluent Temperature for FAC A = [(Eff. Temperature$_{DSN\ 481}$ x Eff. Flow$_{DSN\ 481}$) + (Eff. Temperature$_{DSN\ 482}$ x Eff. Flow$_{DSN\ 482}$) + (Eff. Temperature$_{DSN\ 483}$x Eff. Flow$_{DSN\ 483}$)] / (Eff. Flow$_{DSN\ 481}$+ Eff. Flow$_{DSN\ 482}$+ Eff. Flow $_{DSN\ 483}$)

Effluent Temperature for FAC B = [(Eff. Temperature$_{DSN\ 484}$ x Eff. Flow$_{DSN\ 484}$) + (Eff. Temperature$_{DSN\ 485}$ x Eff. Flow$_{DSN\ 485}$) + (Eff. Temperature$_{DSN\ 486}$x Eff. Flow$_{DSN\ 486}$)] / (Eff. Flow$_{DSN\ 484}$+ Eff. Flow$_{DSN\ 485}$+ Eff. Flow $_{DSN\ 486}$)

*** The permittee shall calculate differential temperature on an hourly basis where the daily differential temperature is an arithmetic average of the hourly values obtained during the course of the day for daily intake temperature and daily effluent temperature. The calculations for daily intake temperature and daily effluent temperature are explained above in footnotes "*" and "**".

"NL" denotes "Not Limited" with monitoring and reporting required.

Facility: **PSEG – Salem** **Discharge Serial Number (DSN): FAC C (DSN's 481 – 486)**
Latitude: **39° 27' 38"** **Wastewater Type: Intake flow limitations and heat limitations for the facility**
Longitude: **75° 32' 16"**

Parameter All units in mg/l (kg/day) unless otherwise noted		Existing NJPDES/DSW Permit limits for **FAC C**	NJPDES/ DSW DMR 7/99-6/00	Draft Permit Limits for **FAC C**
Intake Flow, MGD	avg. max. data pts	3024 NL	2698 2955 12	3024 NL
Thermal Discharge, Million BTU's per Hour	avg. max. data pts	30600 NL	12033 18502 12	30600 NL

* Intake flow for the circulating water system shall be measured as the sum of the twelve individual intakes to the circulating water system. The intake flow values calculated over the course of a calendar day shall be averaged on a daily basis consistent with the definition of daily discharge pursuant to N.J.A.C. 7:14A-1.2. These daily discharge values shall be utilized for any calculation procedures necessary for the purposes of discharge monitoring report form completion.

** Thermal discharge in MTBU/Hr is the total heat released from Unit 1 (FAC A) and Unit 2 (FAC B) where it shall be calculated as follows (as described in Part IV):

Thermal Discharge $_{FAC\ C} = [M_1C_p(T_{eff}-T_{int})]_{Unit\ 1} + [M_2C_p(T_{eff}-T_{int})]_{Unit\ 2} / 1{,}000{,}000$

Where: **M_1 = Mass flow rate of water from Unit 1 in lbs/hour (includes circulating water flow as well as service water flow)**
M_2 = Mass flow rate of water from Unit 2 in lbs/hour (includes circulating water flow as well as service water flow)
Mass flow rate is equal to flow in gal/hour x 8.34 lb/gallon
T_{eff} = effluent temperature from Unit (e.g. Unit 1)
T_{int} = effluent temperature from Unit
C_p is the specific heat capacity of water in 1 BTU/lb F

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required
MGD denotes million gallons per day

Facility: **PSEG – Salem** **Discharge Serial Number (DSN): 48C – Internal Monitoring Point**
Latitude: **39° 27' 38"**
Longitude: **75° 32' 16"**
Wastewater Type: Total regenerant wastewater, chemical drains, analytical equipment wastewater, steam generator drains and floor drains.
DSN 48C discharges to DSN's 481, 482, 484, and/or 485 on a batch-type basis.

Parameter All units in mg/l (kg/day) unless otherwise noted		NJPDES/DSW Permit Application	Existing NJPDES/DSW Permit limits for **DSN 48C**	NJPDES/ DSW DMR 1/99-6/00	Draft Permit Limits for **DSN 48C**
Flow, Effluent, MGD	avg. max. data pts	0.155 0.561 1491	NL NL	0.140 0.448 18	NL NL
Total Petroleum Hydrocarbons, mg/L	avg. max. data pts	<1 1 98	10 15	0.71 3 7 det./ 11 ND	10 15
Total Organic Carbon, mg/L	avg. max. data pts	5.4 50 98	NL 50	16 33 18	NL 50
Total Suspended Solids, mg/L	avg. 7day avg max. data pts	5.6 20 98	30 45 100	8.5 -- 18 18	30 45 100
Ammonia (as N), mg/L	avg. max. data pts	9.9 42 98	35 70	16.5 46 6 det./ 2 ND	35 70

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required.
MGD denotes million gallons per day
"Det." denotes detected value whereas "ND" denotes non-detected value. Non-detectable values are not included in any average calculations.

Facility: PSEG - Salem
Discharge Serial Number (DSN): 487B

Latitude: 39° 27' 38"
Longitude: 75° 32' 16"

Receiving Stream: Delaware Estuary
Classification: Zone 5
WQMP Basin 17/Delaware River Basin

Wastewater Type: Treated stormwater, house heating boiler drains, floor drains

DSN 487B only discharges in an emergency on a batch-type basis. Normal discharge is to the influent of DSN 48C.

Parameter All units in mg/l (kg/day) unless otherwise noted		NJPDES/DSW Permit Application	Existing NJPDES/DSW Permit limits for **DSN 487B**	NJPDES/ DSW DMR 1/99-6/00*	Draft Permit limits for **DSN 487B**
Flow, Effluent, MGD	avg. max. data pts	0.013 0.013 1	NL NL	0.024 0.012 3	NL NL
Temperature – Effluent, °F (°C)	avg. max. data pts	20.5 25 2	NL 110 (43.3)	19.2 22 4	NL 110 (43.3)
Total Petroleum Hydrocarbons, mg/L	avg. max. data pts	<1.0 <1.0 1	NL 15	<0.5 <0.1 3 ND	NL 15
Total Organic Carbon, mg/L	avg. max. data pts	<1.0 <1.0 1	NL 50	6.3 15 3	NL 50
Total Suspended Solids, mg/L	avg. max. data pts	<10 <10 1	NL 100	10.7 16 3	NL 100
PH, standard units	avg. max. data pts	7.45 7.45 1	6.0 9.0	6.6 8 4	6.0 9.0

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required.
MGD denotes million gallons per day.
"Det." denotes detected value whereas "ND" denotes non-detected value.

*This outfall discharges on an emergency basis only – DMR data is available for all limited parameters for 3 months during this period.

Facility: PSEG - Salem
Discharge Serial Number (DSN): 489

Latitude: 39° 27' 40"
Longitude: 75° 32' 00"

Receiving Stream: Delaware Estuary
Classification: Zone 5
WQMP Basin 17/Delaware River Basin

Wastewater Type: precipitation runoff, roof drains, #1 and #2 skim tanks, power transformer sumps, auxiliary power transformer sumps, floor drains and turbine building sump pumps. All components are routed through an Oil Water Separator.

Parameter All units in mg/l (kg/day) unless otherwise noted		NJPDES/DSW Permit Application	Existing NJPDES/DSW Permit limits for **DSN 489**	NJPDES/ DSW DMR 1/99-6/00	Draft Permit limits for **DSN 489**
Flow, Effluent, MGD	avg. max. data pts	0.088 0.183 49	NL NL	0.083 0.2432 18	NL NL
Temperature – Effluent, ^{o}F (^{o}C)	avg. max. data pts	20.5 22.5 2	- -	- -	- -
Total Petroleum Hydrocarbons, mg/L	avg. max. data pts	1.0 4.4 49	10 15	1.5 2 8 det./ 9 ND	10 15
Total Organic Carbon, mg/L	avg. max. data pts	6.7 28 49	NL 50	7.9 26 18	NL 50
Total Suspended Solids, mg/L	avg. 7day avg. max. data pts	7.5 55 49	30 45 100	8.25 - 20 16 det./2 ND	30 -- 100
PH, standard units	min. max. data pts	6.6 8.1 49	6.0 9.0	6.6 8.3 18	6.0 9.0

The abbreviation "N/A" denotes "Not Applicable"; "NL" denotes "Not Limited" with monitoring and reporting required
MGD denotes million gallons per day

"Det." denotes detected value whereas "ND" denotes non-detected value. Non-detectable values are not included in any average calculations.

Facility: PSEG - Salem
Discharge Serial Number (DSN): 488

Latitude: 39° 27' 41"
Longitude: 75° 32' 12"

Receiving Stream: Delaware Estuary
Classification: Zone 5
WQMP Basin 17/Delaware River Basin

Wastewater Type: Tidal river water influx, service water strainer backwash, precipitation runoff, roof drains, floor drains, sump pumps, #1 turbine building floor pump, the service water sump pumps, residual chlorine analytical wastewater, and circulating water system vents.

Discharge Serial Number (DSN): 490

Latitude: 39° 27' 40"
Longitude: 75° 31' 52"

Receiving Stream: Delaware Estuary
Classification: Zone 5
WQMP Basin 17/Delaware River Basin

Wastewater Type: precipitation runoff from the helicopter landing pad area.

Discharge Serial Number (DSN): 491

Latitude: 39° 27' 40"
Longitude: 75° 31' 50"

Receiving Stream: Delaware Estuary
Classification: Zone 5
WQMP Basin 17/Delaware River Basin

Wastewater Type: precipitation runoff from the employee parking lot and an adjacent access road

Chemical-specific effluent limitations and/or monitoring requirements are not applied to DSN's 488, 490 and 491 at this time. The stormwater from all three of these outfalls does not typically come into contact with industrial processes.

X. SECTION 316(a) VARIANCE AND SECTION 316(b) DETERMINATION

A. Regulatory History for Section 316 (a) Variance and Section 316 (b) Determination

Section 316(a) of the Clean Water Act (CWA) provides that a variance from thermal surface water quality standards can be granted, meaning less stringent thermal effluent limits may be imposed, if the permittee can demonstrate that a balanced indigenous population is being maintained in the receiving water. Section 316(b) of the CWA provides the mechanism for a regulatory agency determination as to whether the location, design, construction and capacity of the cooling water intake structure reflect the best technology available for minimizing adverse environmental impact. A detailed regulatory history for Sections 316 (a) and (b) prior to 1993 is provided in the Fact Sheet of the June 24, 1993 draft permit beginning on page 102.

In the July 20, 1994 final permit, the Department granted a Section 316(a) Variance and also determined that the permittee was in compliance with Section 316(b) of the Clean Water Act provided it complied with the conditions of the July 20, 1994 permit. In this permit, the Department determined that "best technology available"(BTA) consisted of the Station's once-through cooling water system in conjunction with an intake flow limitation; modifications to the intake traveling screens; and the conduct of a sound deterrent study. The July 20, 1994 permit also sets forth a variety of Section 316 Special Conditions to minimize and to increase understanding of the effects of the Station due to impingement/entrainment losses, which include the BTA components. Because the Department is making a determination regarding compliance with these permit conditions, a brief discussion of the original technical justification for each of these Special Conditions, as described in the July 20, 1994 permit, is included below. In addition, the rationale for the Department's current compliance determination is also included below.

B. Compliance with Section 316 Special Conditions and/or Overview of Studies performed

Special Condition 1: Limitation of the circulating water system (CWS) intake flow to a monthly average rate not to exceed 3024 MGD. This rate is 5 percent below design specifications. This condition is a component of the July 20, 1994 BTA determination.

Original Technical Justification for Special Condition 1: Limitation of the circulating water system intake flow to this rate allows consistency with the calculated cooling water intake volume that the impingement/entrainment loss estimates presented in the March 4, 1993 PSE&G Renewal Application Supplement were based upon.

Compliance with Special Condition 1: As indicated by the Discharge Monitoring Report (DMR) data summary included for FAC C in the Permit Summary Tables in Section IX, PSE&G is in compliance with the intake flow limit. Considering the average of DMR data from 1/99 through 6/00 the average intake flow amount is 2698 million gallons per day.

Proposed Permit Condition for Intake Flow Limitation: This intake flow limitation has been retained in the proposed permit as discussed previously under Section VIII of this Fact Sheet for FAC C. The calculation procedure for reporting this parameter on discharge monitoring reports has been defined in Part IV.

Special Condition 2: Implement modifications to the circulating water system intake traveling screens to incorporate a new fish bucket design including, without limitation: an extended lip which bends inward toward the screen face at the top to prevent fish escape; smooth woven mesh screen having rectangular pore openings; and a 30 inch wide fish sluice providing an approximate 3 inch depth of water. In addition, the permittee shall study best placement of inside and outside high pressure and low pressure fish sprays as well as a study of whether to combine or separate fish return and debris water system high pressure.

Original Technical Justification for Special Condition 2: The goal of these improvements was to reduce the overall rate of impingement mortality and improve performance and reliability. Improvements to the fish bucket design are required specifically to reduce the vortex current and create a somewhat sheltered region allowing the fish to maintain a stable, upright position. This condition is a component of the July 20, 1994 BTA determination.

Compliance with Special Condition 2

Intake Screen Improvements

In 1995, PSE&G made alterations to its Ristroph traveling water screens (Ristroph traveling screens were installed in 1979) to improve performance and reliability as well as to increase the survival rates of impinged fish. The new traveling water screens are a modified Ristroph design as illustrated in <u>B Figure 11</u>. Each screen unit is a vertical, chain-link, four-post type machine on which the screen rotates continuously to collect fish and debris as the water passes through the screen. Each traveling screen panel is 10 feet wide by 21 inches high and contains sixty-two (62) screen panels. The wire mesh on each screen panel has been changed to 14 gauge (0.100 in) "Smooth Tex®" screening material with 1/4" wide by 1/2" high mesh screen openings. At the bottom of each screen panel there is a composite material fish bucket with a reinforcing bar across the center.

The water spray system was modified to improve water flow to the circulating water traveling screens. A total of eighty spray nozzles were added to the spray headers of each traveling screen. Two low-pressure spray nozzles were added to the source pipe of each of the two inside fish spray headers (a total of 4 nozzles) to provide better spray coverage and improved fish handling. In addition, two high-pressure spray nozzles were added to each of the two main debris spray headers (a total of 4 nozzles) to provide better spray coverage and improve debris removal.

The modifications to the traveling screens incorporated newly designed screen baskets with hydrodynamically improved fish buckets. The modified Ristroph fish screens are made of composite material that are integral to the bottom support member of the screen panel. The fish bucket redesign includes an integral, curved lip or leading edge. This lip efficiently redirects inlet water flow through the entire lower portion of the basket's screen surface area. Additionally, the curved lip eliminates the turbulent flow pattern that existed in previous fish bucket designs (refer to B Figure 12). Each newly designed bucket is configured to form an interlocking seal with the basket frame below it during ascending and descending travel. As the screen bucket travels over the head sprocket of the traveling screen, organisms slide onto the screen face and are washed off by the low-pressure spray system.

The mounting and structural hardware for the baskets is located behind the screen mesh weave. This, in conjunction with the smooth weave pattern, has resulted in a smooth surface to eliminate obstacles that might cause damage to fish when they contract these parts during the spray wash assisted removal cycle.

Additional advantages of using composite materials over steel are corrosion resistance and weight reduction, which allow for increased traveling screen speeds and enhanced debris removal. Use of this material has also resulted in reduced maintenance and operating costs of increased service life. This enhances fish handling because the pressure differential is reduced across screens due to less debris collected on the screen faces. Additionally, flow velocities are kept to a minimum, corresponding to the actual debris loading on the screen. The screen assembly now automatically changes speed in response to the differential pressure across the screens. The screens can rotate at 6,12, 17.5, or 35 feet per minute.

PSE&G completed the modification of the intake screens within the time allowed by the Permit.

Department's Contractor Review regarding Intake Screen Improvements

The Department's contractor, ESSA, reviewed the sections in the March 4, 1999 application pertaining to intake screen modifications, specifically "Attachment 1 – Intake Screen Modifications"; "Exhibit G-1-1 "Traveling Water Intake Screen Modifications"; and "Exhibit G-1-2 – Biological Efficacy of Intake Structure Modifications". The Department specified that these sections were to be reviewed to determine the extent to which the existing intake protection technology (being modified Ristroph traveling screens) has reduced impingement mortality and whether PSE&G's claim that the modified Ristroph traveling screens is best technology available is accurate.

In its June 14, 2000 report, ESSA states that "The Ristroph screen modifications are innovative, and represent BTA at the screens for reducing fish mortalities. However, effectiveness of the Ristroph Screens for improving fish survival will vary with species. Frail species will likely have a higher mortality than more robust ones." ESSA also states that "Because the Ristroph Screen alone cannot fully address fish impingement losses at the Salem station, further studies are recommended at the Salem station for a "fish defense system" which employs multi-sensory or hybrid technologies that focus more on behavioral deterrents."

ESSA also raised concerns regarding the fish return system. Specifically ESSA states that "The modified Ristroph screen is good, but improvements to the design and operation of the fish return system would likely increase the survival of fish coming off the screens."

Department's Determination Regarding Intake Screen Improvements and Proposed Permit Conditions

Based on ESSA's Report, the Department is hereby proposing the following Special Conditions to further understand and enhance the effectiveness of the existing Ristroph Screens:

(1) Fish mortality of the fish return system should be evaluated independently from the mortality of the Ristroph screens to determine mortality rates as fish re-enter the estuary. Emphasis should be placed on reducing potential mortality of susceptible species. PSEG shall submit a ranking of best to worst (i.e. most vulnerable or frail) RIS for which the Ristroph traveling screens are most effective at minimizing mortality.

(2) The permittee shall submit the findings of (1) along with proposed redesign of the fish return sluice where a biologist with expertise in the area of fish behavior shall specify flows, velocities, and depth profiles to minimize mortalities.

The due dates for these required studies and associated workplans are specified in Part IV.

Special Condition 3: Special Condition 3 pertains to the implementation of wetlands restoration and enhancement program which was developed to increase detrital production in the Delaware Estuary. More details are provided on pages 19-24 of Part IV of the July 20, 1994 permit. An overview of these requirements is as follows:

a. Restoration, enhancement and/or preservation of wetlands within the region of the Delaware Estuary (primarily within New Jersey; not more than 20% of the acres restored or enhanced under the program to be located within Delaware and/or Pennsylvania.) as follows:

(i) restore an aggregate of no less than 8000 acres of (1) diked wetlands (including salt hay farms, muskrat impoundments and/or agricultural impoundments) to normal daily tidal inundation so as to become functional salt marsh; and/or (2) wetlands dominated by common reed (*Phragmites australis*) to primarily Spartina species with other naturally occurring marsh grasses (i.e. *Distichilis spicata*, *Juncus spp.*). No less than 4000 of the 8000 acres required to be restored above must have been diked wetlands. The permittee shall secure access to or control such lands such that said lands will have title ownership or deed restriction as may be necessary to assure the continued protection of said lands from development;

(ii) restore an additional 2000 acres of wetlands as set forth above and/or preserve in a state that precludes development through appropriate title ownership or Conservation Restriction of no less than 6000 acres of uplands adjacent to Delaware Estuary tidal wetlands ("Upland Buffer"). An Upland Buffer shall mean an area of land adjacent to wetlands which minimizes adverse impacts on the wetlands and serves as an integral component of the wetland ecosystem;

(iii) the acreage restored, enhanced and/or preserved pursuant to (i) and (ii) above will comprise an aggregate of no less than 10,000 acres; provided, however, the permittee only will be credited one acre toward the 10,000 acre aggregate for every three acres of Upland Buffer acquired or restricted pursuant to (ii) above.

b. The permittee shall impose a Conservation Restriction on the approximately 4500 acres of land in Greenwich Township, Cumberland County, commonly known as the Bayside Tract. The approximate 1900 acres of Upland Buffer on the Bayside Tract shall be applied on a 3:1 basis toward satisfying the acreage requirement in (iii) above.

c. In addition to the above requirements, the permittee is required to design, file and implement Management Plans for the lands described in "a".

d. The permittee is also required to establish a **Management Plan Advisory Committee** (MPAC) to serve as a body to provide technical advice to the permittee concerning the required development and implementation of Management Plans for the sites described above in "a". The MPAC shall consist of representatives from at least three agencies that have jurisdiction over wetland restoration activities; a coastal geologist; two scientists with appropriate expertise; and representatives from Cape May, Cumberland and Salem Counties. The Department shall designate representatives from its Division of Fish, Game and Wildlife and its Mosquito Control Commission. The MPAC shall be chaired by the permittee's representative.

Original Technical Justification for Special Condition 3: The wetlands restoration program is a very important component in minimizing entrainment and impingement effects, especially as it relates to restoration of fish populations. Temperate zone tidal saltmarshes, such as those fringing the Delaware Bay and Estuary, consist of a unique assemblage of plants and animals. In saltmarshes, much of the energy needed to support life is in the form of food manufactured by chlorophyll-bearing plants (i.e. carbohydrates, proteins, fats, and other complex materials). This energy is produced by the marsh grasses where *Spartina spp.* is the dominant species group. In most terrestrial plant ecosystems the flow of energy from the photosynthetic process moves from plant material to grazers (herbivores) to various levels of consumers (carnivores), through a series of organisms repeatedly eating and then being eaten. However, in the tidal saltmarsh systems there are few direct consumers and most of the plant material remains unconsumed until it dies and is washed into the estuary. There it is decomposed and broken down by microorganisms into organic detritus (finely divided particulate matter). Because decomposition occurs continuously throughout the year, detritus is always available for consumption by many forms of aquatic organisms. This process helps make tidal saltmarshes and their connecting estuaries among the most productive ecosystems known to exist. This process, which occurs throughout Delaware Bay, supports an abundance of fishes that are spawned there or have their larval stages carried or deposited there. An increase in the area of saltmarsh will lead to increased growth in marsh grasses which will lead to an increased food supply for fishes. This increase of saltmarshes required in this Special Condition will also result in an increase in the amount of living space (habitat) available for the various species of fishes.

The species at issue at Salem (white perch, spot, weakfish, bay anchovy, and opossum shrimp) are all consumer organisms in the Delaware Estuary food web. Wetland systems in the Delaware Estuary provide foraging and refuge habitat, serve as nursery areas for early life stages and juveniles, and provide direct food resources. For these reasons, increased wetlands in the Delaware Estuary will contribute directly to the increased abundance of these species. Because wetlands in the Delaware Estuary support production of the species at issue, wetlands restoration and enhancement will minimize the effects of Salem-related losses by increasing productivity of these species. Wetlands restoration and enhancement also benefits the other species dependent on the productivity derived from the wetlands. A conceptualized food-energy web for the Delaware Estuary is included as E Figure IV-12.

Wetland production (estimated by the aggregated food chain model) was related directly to the estimated biomass lost by the Station's operations. This loss was used to estimate the wetlands restoration acreage required to adequately minimize the effects of Salem's losses by increasing the population of these species. The food chain model estimates the production of fish biomass per acre based on the biological conversion of wetland plant productivity through the food chain to the fish species at issue. Primary productivity per acre of wetland per year and food chain transfer conversion factors were derived from published, peer-reviewed scientific literature and were employed in this calculation using information specific to the Delaware Estuary, where available. Conservative assumptions were incorporated in these calculations.

The Department determined in its July 20, 1994 permit that PSE&G's proposal to restore or enhance a minimum of 10,000 acres of wetlands in the Delaware River Basin (which includes wetlands and upland buffer acreage) is adequate to minimize the effects of Station-related operations to assure the protection and propagation of the balanced indigenous population.

Compliance with Special Condition 3: Wetlands Restoration and Enhancement Efforts

Land Acquisition, Development of MPAC, Development of Management Plans

The most complex, demanding and large-scale action required by the Special Conditions is the restoration and enhancement of more than 10,000 acres of wetlands and upland buffers. The locations of the restoration sites secured and preserved by PSE&G are indicated on the map included as G Figure 1. These sites can be briefly described as follows:

The **Commercial Township Salt Hay Farm Site ("Commercial")**, in Commercial Township, Cumberland County, New Jersey, is situated along the southern New Jersey shoreline of the Estuary at the northern margin of the Maurice River Cove, approximately 18 miles northwest of Cape May Point. For at least three generations, much of the site had been farmed commercially; earthen dikes had been constructed to enhance the production of salt hay. The Commercial Township site includes 2,894 acres of restorable wetlands. In addition, the site contributes 339 acres of upland buffer to the restoration program.

The **Dennis Township Salt Hay Farm Site ("Dennis")** is located in Dennis Township, Cape May County, New Jersey. Perimeter dikes were built around this area during the 1950's, eliminating normal tidal inundation. Large portions of the site continued to be farmed for salt hay until acquired by PSE&G. The Dennis Township site contributes 369 acres of restorable wetlands and 15 acres of upland buffer.

The **Maurice River Township Salt Hay Farm Site ("MRT")** is located in Maurice River Township, Cumberland County, New Jersey. As early as 1810, perimeter dikes were constructed and water control structures were installed to eliminate normal tidal inundation. The Maurice River Township Site includes 1,135 acres of restorable wetlands and contributes 108 acres of upland buffer to the restoration program.

The **Alloway Creek Watershed Site ("Alloways")** is located in Elsinboro and Lower Alloway Creek Townships, Salem County, New Jersey. The area of restorable wetlands at the Alloway Creek Watershed Site is 2,813 acres; in addition, the site contributes 220 acres of upland buffer to the restoration program.

The **Cohansey River Watershed Site ("Cohansey")** is located in Fairfield and Hopewell Townships, Cumberland County, New Jersey. The restorable area at the Cohansey River Watershed site is 910 acres; in addition, the site contributes 145 acres of upland buffer to the restoration program.

The **Bayside Tract** is located in Greenwich Township, Cumberland County, New Jersey. This site contains 2585 acres of existing salt marsh wetlands (which are not creditable toward the minimum 10,000 acre requirement as they are already existing wetlands) as well as 1822 acres of upland buffer (which are credited toward the restoration program at a 3:1 ratio.)

There are five *Phragmites*-dominated sites **("Delaware Sites")** in Delaware. The **Lang Tract Site** contains 253 acres of restorable wetlands and is located in Saint Georges and Red Lion Hundreds, New Castle County. This site is part of the Augustine Wildlife Area. The **Silver Run Site**, a site with 309 acres of restorable wetlands, is located in Saint George Hundred, New Castle County. The **Rocks Site**, a site with 736 acres of restorable wetlands, is located in Appoquinimink Hundreds, New Castle County. This site is part of a continuous tidal marsh community, referred to as the Appoquinimink River-Blackbird Creek System. The **Cedar Swamp Site**, a site with 1,863 acres of restorable wetlands, is located in Blackbird Hundred, New Castle County. The **Woodland Beach Site**, a site with 1,177 acres of restorable wetlands, lies in the northeast corner of Kent County. PSE&G has chosen the Rocks Site and the Cedar Swamp Site for the purposes of compliance with the NJPDES permit.

In sum, PSE&G has acquired or gained control of 4,398 acres of restorable diked wetlands, 3,723 acres of restorable *Phragmites*-dominated wetlands in New Jersey, 4,338 acres of restorable *Phragmites*-dominated wetlands in Delaware (of which 2,000 acres will be applied to the Permit requirements), and 2,649 acres of upland buffers (of which 1,822 acres are contributed by the Bayside Tract). PSE&G contends that the total acres of wetlands and upland buffers (converted at 3:1 ratio pursuant to the terms of the Permit) creditable against the 10,000 acre permit requirement are 11,004.

For each of the selected restoration sites, Management Plans were developed and approved by the Department.. Each Management Plan provides an overview of existing conditions, proposes design provisions for implementation, assesses potential environmental and off-site impacts, provides a schedule for implementation, identifies success criteria, and establishes an adaptive management program. As stated in paragraph 3.(h) of Part IV of the July 20, 1994 NJPDES permit, the Management Plans are automatically incorporated as conditions of the NJPDES permit upon final approval by the Department.

The July 20, 1994 Permit requires PSE&G to establish a Management Plan Advisory Committee ("MPAC") to provide technical advice to PSE&G concerning the development and implementation of the Management Plans. The MPAC was created in accordance with Permit requirements. The MPAC membership currently includes representatives of PSEG, NJDEP, National Marine Fisheries Service ("NMFS"), United States Fish and Wildlife Service ("USFWS"), DNREC, Army Corps of Engineers, and the Delaware Estuary Program ("DELEP"). The MPAC also includes local representatives from Cumberland, Cape May, and Salem Counties in New Jersey, as well as four independent scientists - Michael S. Bruno, Ph.D., a professor at Stevens Institute of Technology; William S. Mitsch, Ph.D., a professor at Ohio State University; R. Eugene Turner, Ph.D., a professor at Louisiana State University Coastal Ecology Institute; and Joseph Shisler, Ph.D of Environmental Impact Statements. Although DRBC and USGS initially participated in the MPAC, their representatives resigned, citing competing demands on their time. The MPAC has been actively involved in the development of the Management Plans, providing technical review and advice that have helped shape the Plans into technically sound and effective blueprints for restoration.

Marsh Restoration at Salt Hay Farm Sites - Dennis, MRT, Commercial

The restoration designs for the salt hay farms were intended to optimize the use of natural factors such as channel size and shape, drainage patterns, and ratio of marsh plain to open water to encourage natural engineering of the site. The designs at these sites were focused on restoration of tidal exchange through breaching of perimeter dikes, excavation and construction of tidal channels and inlets, and development of upland protection dikes. Elevated areas for colonization by high marsh species were also created by selective placement of material excavated from channels. Provisions were made for the protection of threatened and endangered species.

Restoration at NJ Phragmites-dominated sites - Alloways and Cohansey

The wetland restoration program for the Phragmites-dominated sites sought to control Phragmites to promote the growth of Spartina and other desirable naturally occurring marsh vegetation. This program included baseline field data collection; initial Phragmites control and prescribed burning; additional field data collection; continued Phragmites control; and marsh plain modification and upland edge source control. Biological, geomorphic, hydrologic and chemical data were collected prior to removal of Phragmites to establish baseline characteristics and to support restoration design.

PSE&G then developed a conceptual design consisting of spraying with an herbicide, burning, modification of existing channels, and excavation of additional channels to re-establish a natural hydroperiod. Following the removal of dead standing Phragmites stalks, intermediate channels were identified. Tidal data collected on the marsh plain in areas previously dominated by standing Phragmites indicated that no appreciable tidal restrictions existed at either the Cohansey River or Alloway Creek Watershed sites and that both experienced a natural hydroperiod. Therefore, no additional channel excavation was necessary. However, evaluation of the marsh plain indicated the absence of rivulets and smaller or higher class channels typically present in Spartina-dominated marshes. Following Phragmites spraying and burning, the changing morphology of the marsh plain renders it available for the re-establishment of Spartina and other desirable marsh vegetation. Restoration activities at the New Jersey sites included spraying and burning in 1996 and 1997. Some additional spraying in 1998 occurred, and supplemental control measures were implemented in 1999 and 2000.

Restoration at Delaware Phragmites-dominated Sites

The five Phragmites-dominated sites in Delaware are on public lands managed as State Widlife Areas by DNREC's Division of Fish and Wildlife. Restoration of Phragmites-dominated sites in Delaware is being managed by DNREC, with funds from PSE&G, through an integrated program of spraying and controlled burning. In addition, marsh plain modifications and additional Phragmites control measures will enable more ecologically beneficial species, such as Spartina, to become re-established. The Delaware sites were all sprayed by DNREC during the 1995 growing seasons with follow-up treatments during the 1996, 1997 and 1998 seasons. Portions of these sites were burned during the winters of 1996, 1997 and 1998 to remove the dead Phragmites stalks. Supplemental control measures were implemented in 1999 and 2000.

Restoration at Bayside Tract

The final Permit requirement relating to marshes is the preservation of tidal marshes and uplands at the Bayside Tract. The Bayside Tract covers approximately 4,407 acres in Greenwich Township, Cumberland County, New Jersey. Salt and brackish marshes, which are located primarily along the western perimeter of the Bayside Tract, are the dominant type of land cover and vegetative communities within the Bayside Tract.

The Management Plan for this site was developed to provide for long-term preservation and conservation while maintaining existing uses. The focus of the Plan was to protect aquatic habitat, particularly the 2,585 acres of salt marsh, by preserving 1,822 acres of upland area from development; maintaining and protecting the agricultural economy; protect natural and historic communities and cultural resources; and providing public access in a manner consistent with these goals.

Role of Reference Marshes

Reference marshes were selected to provide a reference point to evaluate the ongoing success of the restoration efforts. Monitoring is conducted at four representative restored wetlands and two reference marshes (Mad Horse Creek for Phragmites-dominated and Moores Beach for salt hay farms). The Phragmites-dominated wetland restoration sites selected for monitoring were the Alloway Creek and the Cohansey River Watershed restoration sites. The diked salt hay farms selected for monitoring were the Commercial Township Salt Hay Farm Wetland Restoration site and the Dennis Township Salt Hay Farm Wetland Restoration Site. Data relating to vegetation coverage (from aerial photographs), geomorphology, macrophyte productivity, and algal productivity from the restoration sites are collected and compared with that from the reference marshes that are monitored.

Adaptive Management at Dennis, MRT, Commercial, Alloways and Cohansey, Delaware

Adaptive Management is a process initiated after initial restoration activities have been completed to ensure the restoration goals are met. The foundation of Adaptive Management is an understanding of tidal marsh ecology based on current literature, historical observations, on-going data collection, and monitoring. The Adaptive Management Process is implemented through the multi-disciplinary Adaptive Management Team (Team) where a Department representative accompanies the Team. The Team evaluates the progress of the wetland restoration by regular site visits (a minimum of quarterly visits), field observations, and by evaluating monitoring activities.

To ensure that the Success Criteria for the wetland restoration sites will be met, thresholds in the form of trends or trajectories have been developed against which the Team and PSE&G monitor the progress of wetland restoration. Defined variances from the expected trends or trajectories trigger the need for further evaluation of potential problems to determine an appropriate course of action. Upon determination that corrective measures are necessary, PSE&G, in consultation with members of the MPAC and the resource management agencies, will evaluate feasible alternatives for the resolution of an identified problem. Upon review and approval of the proposed corrective measure(s) by the Department, PSE&G will initiate implementation of the appropriate corrective measures. The Adaptive Management Process is shown in Figure 8. As indicated in Figure 8, the thresholds relate directly to the success criteria, and address two categories, namely hydrology and vegetation. Potential corrective actions for the hydrologic and vegetative adaptive management threshold triggers at the wetland restoration sites may, at a minimum, include:

- excavation of additional primary tidal channels;
- enlargement of existing primary tidal channels;
- excavation of secondary tidal channels;
- modifications to tidal inlets;
- notching of material that blocks drainage;
- filling existing tidal channels (where circulation patterns are detrimental to vegetation restoration);
- stabilizing existing breaches;
- stabilizing of upland dikes or internal berms;

- microtopographic modifications;
- planting of Spartina species (seeding or plugging) or other desirable marsh vegetation on portions of the restoration sites;
- planting of upland edges to control re-invasion of Phragmites by rhizomes;
- elevation reduction;
- mechanical source control (including mowing) of Phragmites;
- biological control of Phragmites areas;
- soil nutrient modifications/soil chemistry adjustment of Phragmites areas; and
- control of Phragmites by the application of Rodeo® with a surfactant in both previously treated and non-treated areas only after ruling out all other intervention strategies listed above. The application of Rodeo® with a surfactant shall be limited to spot applications that are not to cover more than one third of the vegetative marsh plain on an annual basis.

Together, these biological and mechanical response activities offer alternatives that will provide effective means for corrective action should any active intervention be necessary under the decision making process. In the event that the Department determines that a repetitive application of Rodeo® with a surfactant is the only available method for Phragmites control, PSE&G may be required to eliminate the "failed" acreage from the program and to provide other wetland or upland acreage to meet the NJPDES permit requirements.

Compliance with Interim Vegetative Criteria and Final Success Criteria in Management Plans for Dennis, MRT, Commercial, Alloways, Cohansey and Delaware Sites

As detailed in Figure 8 , the Adaptive Management Process (which is included in the Management Plans for all the sites) contains interim vegetative criteria and final success criteria. Based on this interim vegetative and final success criteria, the compliance dates for the wetland restoration sites are as follows:

	Completion of Restoration Implementation Action	Interim Vegetative Criteria	Final Success Criteria
MRT	March 1998	March 2007	March 2012
Dennis	October 1996	October 2005	October 2010
Commercial	November 1997	November 2006	November 2011
Alloways	September 1999	September 2006	September 2012
Cohansey	September 1999	September 2006	September 2012
The Rocks	June 2000	June 2007	June 2013
Cedar Swamp	June 2000	June 2007	June 2013

Compliance with the interim and final success criteria is determined by the Department's review of aerial photography. At the time of this proposed permit issuance, the permittee is in compliance with the approximate 9% coverage of Spartina and other desirable marsh vegetation per year. The percent coverage by desirable vegetation at all the wetland restoration sites is included as Table 2.

Herbicide Use with Respect to NJ Phragmites-Dominated Sites

The ultimate goal of the wetlands restoration program is to restore Phragmites-dominated wetlands to Spartina wetlands to enhance fish productivity. For various reasons, Phragmites eradication is generally looked upon favorably by natural resource agencies such as the Department.

Natural resource agencies with years of experience in the Phragmites battle have come to regard the application of the herbicide, glyphosate (a component of Rodeo®), as one of the most effective means to eradicate Phragmites. Glyphosate is registered by the United States Environmental Protection Agency for use in an aquatic environment. After a careful and comprehensive review, the Department settled on an approach which uses glyphosate application followed by a prescribed burn of the sprayed area. While the Department approved a follow-up application of glyphosate, it is not intended to be a program of open-ended, perpetual herbicide application. The Department continues to encourage minimization of the use of glyphosate on the wetland restoration sites. Once the proper hydrological regime is established in an affected area, the Department's goal is for native wetland vegetation such as Spartina alterniflora to outcompete Phragmites.

Stranding of Horseshoe Crabs at MRT

The Department acknowledges that prior to completion of PSE&G's Restoration activities at MRT in the spring of 1998, large numbers of horseshoe crabs (*Limulus polyphemus*) were observed stranded on the unvegetated marsh plain. Historically, when the perimeter dikes were in place and salt hay farming was practiced at the site, horseshoe crabs would have been unable to enter the site. After farming activities ceased and prior to ownership of the property by PSE&G, breaches in the dikes had developed during the winter of 1992/1993, due to severe storms and natural erosion. Horseshoe crabs were then able to directly access the site from the Bay. As erosion continued to enlarge the natural breaches, the marsh plain began to drain on low tides. These breaches caused high velocity flood tide currents which carried horseshoe crabs onto the unvegetated marsh plain where they appeared to become disoriented. The lack of tidal channels typical of those present in a natural salt marsh appeared to hinder the crabs from migrating out of the marsh. Thus, horseshoe crabs had been stranded on the marsh plain in 1996 and 1997.

This situation was substantially improved by PSE&G through modifications to drainage at the site which took place after the 1996 and 1997 horseshoe crab spawning seasons, including the addition of new tidal channels and the widening and deepening of existing channels. During the 1998 horseshoe crab spawning season as well as the 1999 and 2000 seasons, there were no more dead or stranded horseshoe crabs at the MRT site than the Department found anywhere else in the State. As revegetation of the MRT site continues to progress, the number of horseshoe crabs which traverse the creek banks on to the marsh plain should be further diminished.

Department representatives, including a representative from the Endangered and Non-Game Species Program, have reviewed the study entitled "Potential Effects of Diked Salt Hay Farm Restoration on Horseshoe Crabs" (conducted by Dr. Robert Loveland of Rutgers University and

Dr. Mark Botton of Fordham University). One of the objectives of this study was to quantify the abundance and distribution of adult horseshoe crabs and the survival of horseshoe crab eggs at this site. This study also assessed the potential effects of the restoration of diked salt hay farms on horseshoe crabs. The Department did not find any deficiencies regarding this study.

Department's Determination Regarding Wetland Restoration Efforts and Oversight and Proposed Permit Conditions

The Department has determined that at the present time, the requirements pertaining to land acquisition and development have been met. The Department has determined that the following acreage is currently creditable towards the permit requirements:

Site	Total Acreage	Total Acreage Creditable Towards Permit
Alloways: Wetlands	2813	2813
Alloways: Upland Buffer	220	73.33
Cohansey: Wetlands	910	455
Cohansey: Upland Buffer	145	48.33
Dennis: Wetlands	369	369
Dennis: Upland Buffer	15	5
MRT: Wetlands	1135	1135
MRT: Upland Buffer	108	36
Commercial: Wetlands	2894	2894
Commercial: Upland Buffer	339	123
Bayside Tract: Wetlands	2585	0
Bayside Tract: Upland Buffer	1822	607.33
The Rocks and **Cedar Swamp**	2599	2000
Other Delaware Sites	1739	0
TOTAL	17,693 acres	10,559 acres

Other Lands Within Site Boundaries	1374
Other DNREC Lands	1452
	20,520 acres

The Cohansey site was dominated by 45% Phragmites prior to the onset of restoration activities, the Department has credited the wetlands acreage at this site at a 2:1 ratio.

The Department is hereby requiring the permittee to continue in its wetland restoration efforts as dictated in the Management Plans for each site.

The input of the MPAC scientists and advisors, as well as members of the public, is integral to the restoration of the marshes that are part of the Estuary Enhancement Program. It is imperative that an active, continuing dialogue is maintained to ensure this success. However, the restoration implementation actions have been completed at all the sites above. As a result, the Department has determined that it is appropriate and beneficial to merge the Management Plan Advisory Committee (MPAC) and the Monitoring Advisory Committee (MAC) under one oversight committee, namely the "Estuary Enhancement Program Oversight Committee" (EEPOC) at this time. This will result in a multi-disciplinary committee with expertise in both wetland restoration and aquatic resources. Upon finalization of this renewal permit, the permittee shall develop a charter for the EEPOC and re-designate select MPAC and MAC members as part of the EEPOC.

In sum, the proposed permit conditions relating to wetland restoration efforts are as follows:

(1) The permittee shall continue to implement the Estuary Enhancement Program sites as dictated in the Management Plans. In order to comply with the 10,000 acreage requirement, the Department may require the permittee to acquire additional lands to serve as "replacement acreage" for any acreage deemed "failed" by the Department.

(2) The permittee shall establish an Estuary Enhancement Oversight Committee (EEPOC) to provide technical advice to the permittee concerning the implementation of the Management Plans and concerning the Biological Monitoring Program (as described later under **Special Condition 6**). The EEPOC shall consist of representatives from at least three agencies having jurisdiction over wetland restoration activities (a minimum of one representative from each agency); a minimum of two scientists with appropriate wetlands expertise; a minimum of three scientists with appropriate expertise in aquatic resources; and representatives from Cape May, Cumberland and Salem Counties. The Department shall designate two representatives from its Division of Fish and Wildlife as well as a representative from its Mosquito Control Commission. The EEPOC shall meet at least twice per year where at least one meeting shall include a tour of some or all of the wetland restoration sites. All materials presented at any EEPOC meetings shall be distributed to EEPOC members at least one week in advance of any meeting. Upon finalization of this permit, all references to the "MPAC" and "MAC" in any documentation required under the July 20, 1994 permit or incorporated therein by reference shall be interpreted to mean "EEPOC".

These proposed permit conditions are included in Part IV.

Special Condition 4: Implement a program for the elimination of impediments to fish migration through the installation of fish ladders at up to five sites in tributaries of the Delaware Estuary in consultation with the Department.

Original Technical Justification for Special Condition 4: River herring (e.g. alewife, blueback herring, american shad) serve as forage for a variety of important commercial and recreational species (e.g. bluefish, white perch, weakfish, and striped bass). River herring are an anadromous species that return to their natal tributaries to spawn. The adults return downstream to the bay after spawning and the eggs develop into juveniles who remain behind to use the freshwater stream or impoundment as a nursery area. In the fall of the first year of their lives, the young migrate to the estuary.

Many of the tributary streams and rivers utilized by river herring for spawning along the Atlantic Coast of the United States have been dammed or otherwise blocked for industrial, irrigation, recreational, or flood control purposes. The Department determined that the implementation of this measure would provide long-term benefits to the Estuary fisheries through increased river herring production, increased available forage for important commercial and recreational species (including certain of the Target Species at issue), and increased commercial and recreational fishing opportunities in the tributary streams to the Delaware River.

Compliance with Special Condition 4

The July 20, 1994 permit requires PSE&G to construct and maintain five fish ladders on Delaware River tributaries to restore spawning runs of two species of river herring, namely alewife and blueback herring. To fund engineering designs as well as the construction and maintenance of the fish ladders, PSE&G was required to establish an escrow account in the amount of $500,000. The Permit included a compliance schedule for each of the component steps in ladder design and construction. The Permit also required PSE&G to conduct operational and maintenance activities during the term of the Permit and during any period of time that the Permit is extended. Finally, as described later under **Compliance with Special Condition 6**, the permit required PSE&G to submit a Biological Monitoring Program Work Plan (BMPWP) which describes the monitoring program developed to document (1) adult utilization of the ladders, (2) subsequent spawning in upstream waters, and (3) development of spawned river herring to the juvenile life stage.

PSE&G identified impoundments suitable for the installation of fish ladders in several phases, beginning with identifying potential sites based on size as well as feasibility of installation. The next phase involved evaluating candidate sites for their suitability for supporting river herring production. Initially, this evaluation focused on New Jersey sites, but was later expanded, after the Settlement Agreement with Delaware, to include candidate sites identified by DNREC. As part of PSE&G's settlement with DNREC, it was agreed that after completion of the construction of the ladders in Delaware, DNREC would manage and maintain the ladders. PSE&G would have access to the sites and be responsible for performing biological monitoring in accordance with its permit.

On the basis of available literature and a survey of natural resources management agencies, including NJDEP Division of Fish, Game and Wildlife (Bureau of Marine Fisheries) and USFWS, the steeppass ladder design was selected by PSE&G as the appropriate and preferred fishway design for installation at all of the PSE&G sites.

As required by the Permit, engineering feasibility studies were then conducted for the preferred sites identified from the field studies and the suitability analysis. Engineering feasibility study and design focused on the selection of ladder materials, installation details, site modifications and dam safety issues. All ladder designs were developed with review and input from USFWS personnel.

This process led to the selection of eight locations for the installation of ladders. To date, eight fish ladders have been installed: Sunset Lake, NJ; McGinnis Pond, DE; McColley's Pond, DE; Silver Lake, DE; Coursey's Pond, DE; Cooper River, NJ; Garrisons Lake, DE and Moores Lake, DE (refer to G Figure 1 for locations). In addition, PSE&G has assisted USFWS in the installation of fish ladders at two more sites in NJ, namely Wallworth Lake and Evans Pond.

To obtain maximum ecological benefits from the restoration of river herring runs, it is important that the ladders be properly operated and maintained. Operation and maintenance manuals have been developed for the fish ladders installed. Operation and maintenance has been performed by PSE&G at each of the ladders that has become operational as required by the July 20, 1994 permit. Inspections and maintenance are performed during biological monitoring studies.

During the spring 1998 spawning run, a stocking program was initiated to enhance the movement of adult river herring into the impoundments. The goal of the program was to achieve a total movement of at least five adult river herring per acre into each impoundment. In this way, stocking served to supplement the numbers of fish passing up the ladders voluntarily.

The Permit required that PSE&G monitor the fish ladders for adult river herring passage, as well as monitor the impoundments for the presence of eggs, larvae, and juvenile river herring. Components of the BMPWP require that the larval, juvenile, and adult river herring use of these sites be monitored. PSE&G's BMPWP was reviewed and approved by both the Monitoring Advisory Committee (MAC) and the Department. Four elements are important in the restoration process: 1) mature adults use the fish ladder to gain access to the pond; 2) spawning in the pond environment; 3) successful hatching, larval development and juvenile growth; and 4) successful emigration from the pond by juveniles. As discussed earlier, the requisite operations and maintenance activities as contemplated in the Operations and Maintenance manuals are implemented in conjunction with these monitoring activities. A summary of the biological monitoring program for the fish ladders, which indicates the number of fish that have voluntarily passed up the ladders, is included as Tables 3A and 3B.

Biological monitoring to document use of the installed fish ladders and upstream impoundments by blueback herring and alewife was performed as a component of the Biological Monitoring Program (as discussed later under **Special Condition 6**). From 1996 to 1999, the fish ladder monitoring program included monitoring of adult usage of the fish ladders during the spring spawning run; egg and larval herring sampling during the late spring / early summer; and sampling during fall to assess the abundance, size and condition of juvenile herring in the impoundments. Monitoring of adult fish passage was conducted three times per week beginning when water temperatures first reach 12 degrees Celsius and ending when water temperatures first reach 21 degrees Celsius. Larval fish sampling in 3 to 5 areas of each impoundment was conducted two times a month during the upstream migration period. Juvenile sampling was conducted at 3 to 5 locations in each impoundment monthly from September through November.

In summary, PSEG has fully complied with the Permit Condition requiring installation of five fish ladders and other associated fish ladder requirements. By completing installation of eight ladders, it has exceeded the amount of fish ladders required by the permit. In addition, PSEG has complied with the requirement to perform abundance monitoring for ichthyoplankton and juvenile blueback herring in connection with the fish ladder sites. The Department has reviewed the Operations and Maintenance Manuals and has determined that they are comprehensive and hence acceptable.

Proposed Permit Condition Regarding Fish Ladders

By proposing the following conditions, the Department is hereby requiring PSEG to continue in its efforts to ensure that the ladders are utilized by river herring and also appropriately operated and maintained:

(1) The permittee has installed eight fish ladders in accordance with the conditions of the July 20, 1994 permit. The permittee shall operate and maintain these eight fish ladders in accordance with the developed Operations and Maintenance Manuals. Routine maintenance and inspections shall be performed to ensure that the ladders are operating as designed. Inspection reports prepared as part of routine Operations and Maintenance shall be made available to the Department upon request.

(2) The permittee shall continue to perform monitoring for adult and juvenile passage in connection with the fish ladder sites where the monitoring results shall be included in the annual biological monitoring program.

(3) The permittee shall continue to stock any impoundments until such time as the adults using the ladder meets the minimum number of adults calculated per acre for the minimum number of juveniles (1005 /acre).

These proposed permit conditions are included in Part IV.

Special Condition 5: Conduct a study to evaluate the feasibility of using sound to divert fish away from the CWS intake.

Original Technical Justification for Special Condition 5: Successful diversion of fish from the area of the CWS intake would reduce the number of fish impinged onto the intake screen thereby reducing Salem-related losses. Laboratory tests, field tests and even in-situ applications have indicated some success in diverting certain fish species from specific areas, including cooling water intake structures, through the use of sound generating devices, such as underwater speakers or sound projectors. Unlike poppers and hammers, these devices are capable of varying the frequency and producing sounds heard by fish. This condition is a component of the July 20, 1994 BTA determination.

Compliance with Special Condition 5

The Permit required PSE&G to submit (for NJDEP's approval) a Plan of Study ("POS") for assessing the feasibility of deterring fish from the area of the intake using underwater speakers or sound projectors; implement the POS in accordance with the schedule approved by the Department; and file a report of the results on or before March 4, 1999. The Permit also required that the POS provide for an assessment of the potential for detrimental effects of sound deterrent systems on fish species in the Estuary.

The 1994 POS was submitted to and approved by the Department. Sound deterrent feasibility studies were conducted using the nine Salem finfish RIS, namely, weakfish, bay anchovy, white perch, Atlantic croaker, spot, striped bass, alewife, American shad and blueback herring. Two series of cage tests were performed in 1994 to identify sounds that would potentially be effective in repelling fish from the intake during subsequent in-situ tests. The cage tests involved exposing fish to a wide range of sounds that varied in frequency, waveform, sound pressure level ("SPL"), and pulse width and interval duration.

The POS provided that cage tests would be followed by in situ tests at the intake. Because Salem was not operating at full power in 1996 and 1997, the sound feasibility study, including the in situ testing, was not completed until 1998.

PSE&G obtained the assistance of Dr. Arthur N. Popper, an expert on fish hearing, in designing the tests conducted in 1998. PSE&G implemented in 1998 a revised Plan of Study (approved by the Department) for additional cage testing in 1998. Following the conclusions of the 1998 cage tests, in situ testing was conducted at the Salem intake in the summer and fall. PSE&G also performed studies to assess whether the sounds used at the Salem intake during in situ testing could have adverse effects on fish behavior.

In sum, PSEG has complied with the Special Condition pertaining to the conduct of sound deterrent studies.

Department's Contractor Review regarding Sound Deterrent Studies

ESSA reviewed the sections in the March 4, 1999 application which detail the sound studies described above, namely Attachment G-7 "Feasibility Study on the Use of Sound to Deter Fish from the Vicinity of the Salem Generating Station Circulating Water Intake Structure" including support Exhibit G-7-1 "Study Chronology"; Exhibit G-7-2 "Report on 1994 Cage Tests"; Exhibit G-7-3 "Report on 1998 Supplemental Cage Tests"; Exhibit G-7-4 "Report on Sound Field Mapping"; and Exhibit G-7-5 "Report on 1998 In Situ Tests". ESSA was contracted to review these sections to determine if the use of sound would reduce impingement losses at the cooling water intake structure by reviewing available data and statistics. In its report, ESSA provided a brief technical description of the sound deterrent studies performed, as well as comments and concerns on each of the tests. A brief overview of this information is included below. However, for more information concerning ESSA's concerns and conclusions, please refer to the ESSA Report included as Attachment A.

<u>ESSA's Description of 1994 Cage Tests</u>

Feasibility Studies - The objective was to identify those sounds that could potentially be effective in repelling fish from the CWS during subsequent in-situ tests. The 1994 cage tests involved a sound system and a testing platform.. Sounds were tested using two waveforms: pseudo-random noise and FM chirps (100 Hz to 145 KHz). Nine RIS were tested over the September to November period.

ESSA's Concerns with Test Protocol of 1994 Cage Tests

- given the size of the cage facility, fish may have been stressed in this small enclosure (3 feet x 3 feet x 12 feet)
- the acclimation period for fish prior to testing (i.e. 2-3 days) probably should have been longer.
- the number of individuals per test (between 20 and 30) was adequate, but perhaps a few tests should have been conducted for larger numbers of fish (50-100).
- the design does not include investigating any far-field effects (i.e. responses beyond 4 m)
- duration periods (10-15 minutes) were not long enough given the time period allowed for in-situ tests.

ESSA's Conclusions of 1994 Cage Test Results

In its June 14, 2000 report, ESSA cites PSE&G's summary as follows: "The Alosa species was the only test group that showed a consistent avoidance response to a specific acoustic signal. Weakfish, Atlantic Croaker, and bay anchovy showed some promising results to at least one one-half octave band, but the responses were quite variable. Spot, striped bass, and white perch exhibited weak or no responses. These preliminary results with Alosids (in response to ultrasound) are very encouraging but the avoidance response was not consistent among other species tested." ESSA concurs with PSE&G's review and analysis of the shortcomings and/or limitations of the 1994 cage tests with regard to limiting the number of sounds tested; the need for more replication; and the need for more quantitative analysis. However, ESSA concludes that the decision to make data more quantitative by reducing the size of the cage facility may have itself been a limitation.

ESSA's Description of 1998 Cage Tests

Overall, the experimental approach in 1998 was similar to that in 1994, although there were significant changes in the way the experiments were conducted. These changes included testing fewer fish species (bay anchovy, weakfish and Atlantic croaker), the use of fewer sounds, more replication, and the use of quantitative analysis versus qualitative. The goal of testing new sounds was to try to elicit stronger and more consistent responses than what was observed in the 1994 tests. These tests were conducted during July.

ESSA's Concerns with Test Protocol of 1998 Cage Tests

- the size of the cage facility area was further reduced from 1994 to a channel of 1.3 feet x 2 feet x 11 feet - again size may have constrained movement by stressing the fish in restricting schooling behavior.
- again, the acclimation period (i.e. 2-3 days) probably should have been longer.
- the design does not include investigating any far-field effects (i.e. responses beyond 4 m) only one type of signal for each test (e.g. low frequency) rather than different types of simultaneously transmitted sound (e.g. low and ultra-sound transmitted simultaneously from different projectors).

Description of In-Situ Tests

These tests were conducted at the cooling water structure (CWS). Two sounds were used, one for non-Alosa species (low frequency) and the other for the Alosa species (ultrasound). The ultrasonic and low frequency signals were transmitted independently. This evaluation was conducted during the summer (July 16 - August 23) and in the fall (October 20 - December 2). Evaluation consisted of monitoring fish impinged using a randomized design of 6 hour testing (3-hour sound on, and 3 hour control or sound off).

ESSA's Concerns with Test Protocol for In-Situ Tests

- The justification for conducting the "in-situ" tests is unclear since there were no consistent avoidance responses for several RIS species based on the cage test results.

- the in-situ test results were mixed, showing both reduced and enhanced impingement. In many of the comparisons of control and experimental data sets, sample size was inconsistent among species and may have played a role in the inconsistency of the results. This influences the relative importance of many of the statistical tests since in many instances, although the number of replicates may have been high, there were very small numbers of fish.

ESSA questions - Based on the In-Situ Study, does sound reduce impingement?

Using the in-situ raw count sound data, ESSA performed a calculation of the number of fish impinged for both control and experimental sound tests over the 3 in-situ testing periods for all 11 species, 8 of which are RIS. Based on this data, ESSA concludes that "...sound is not very effective in reducing TOTAL FISH IMPINGEMENT at Salem Generating Station. However, there is evidence based on the 1994 cage tests (and in the literature) that some sounds (e.g. FM chirp, with a center frequency of 121.8 KHz) show promise for deterring alosid species."

ESSA cautions that there are many examples of statistical reductions for the in-situ tests described in Attachment G-2; however, the results are inconsistent. Furthermore, there seems to be a focus on the statistical significance of results rather than the percent reductions. ESSA suggests that consideration of a fish exclusion system should have an effectiveness approach of 70% exclusion for some key target species.

ESSA's Recommendations for Improvements to any Future In-Situ Sound Studies

ESSA identifies the following problems with the sound studies and suggests ideas as to how to rectify these problems in any future studies:

- The duration of the testing period should be expanded to at least 12 hours to increase the opportunity for encountering large groups of fish.

- The question of fish residency in the forebay prior to being collected on the screens needs to be addressed. If residence occurs, counts for specific species such as bay anchovy could be seriously influenced. A longer time period for conducting these tests would minimize the impact of this error.

- The permit application contains no assessment of fish behavioral responses to sound signals in front of the intake. Reliable information about potential far-field attraction behavior, or potential acclimation must be obtained before a permanent system can be installed "In-situ" tests of at least 12 hours in duration, rather than 3, would provide a much clearer idea about the potential for acclimation to sound by fish.

Department's Determination Regarding Sound Deterrent Studies and Proposed Permit Conditions

The Department acknowledges PSEG's comprehensive efforts in its study of sound deterrents, specifically the 1994 and 1998 Cage Tests; the literature review; the 1998 In-Situ Tests and the Sound Larval Data study. Likewise, ESSA states "For the required study of the effects of sound as a fish deterrent, the investigators did a thorough job in data collection and analysis. It is indeed one of the most comprehensive data collections on sound and fish response to date." ESSA continues with "Considerable inconsistency in results occurred between 1994 and 1998. After examining all the data, we cannot recommend sound as a single deterrent system for excluding all RIS species at Salem GS. There was simply not enough impingement reduction demonstrated." However, on page 32 ESSA states "The 1994 results were positive on the issue of ultrasound for repelling alosids at Salem GS. This is also consistent with the literature for alosid species in other locations - e.g. alewife, blueback herring and American shad (Dunning et al. 1992, Nesler et al. 1992, Ross et al 1993, Ross et al. 1996)."

Based on the review of sound studies detailed above, the Department is hereby proposing the following Permit Conditions to further study sound as part of a hybrid intake protection technology:

(1) Further study of sound deterrents shall be pursued as part of a hybrid system as discussed later under **Compliance with Special Condition 11**. The concerns and limitations documented by ESSA in its report for the 1994 Cage Tests; 1998 Cage Tests; and the in-situ tests shall be considered in the development of any Plan of Study.

(2) Far field attraction behavior or potential acclimation shall also be studied for any hybrid intake protection technology that includes the use of sound. The concerns raised by ESSA for the larval sound studies shall be considered.

The study of alternate intake protection technologies is discussed in further detail under the section entitled "Department's Determination regarding Cost/Benefit Analysis and Alternate Intake Protection Technologies" later in this Fact Sheet. The due dates for these required studies are specified in Part IV.

Special Condition 6: Conduct a Department approved **biological monitoring program** for the Estuary which shall include:
- comprehensive thermal monitoring and performance of a biothermal assessment on the RIS
- bay-wide abundance monitoring
- impingement and entrainment monitoring

- abundance monitoring for ichthyoplankton and juvenile blueback herring and alewife in connection with fish ladder sites
- detrital production monitoring
- residual pesticide release monitoring (in salt hay impoundments)
- other special monitoring studies including effects of sound deterrents as may be required by the Department.

In addition, the permittee was required establish a **Monitoring Advisory Committee** (MAC) to serve as a body to provide technical advice to the permittee concerning the design, implementation, modifications and interpretation of the Biological Monitoring Program. The MAC shall consist of representatives from at least three agencies that have expertise in the aquatic resources of the Delaware Estuary as well as at least three independent scientists having similar experience. The Department shall designate representatives from its Division of Fish, Game and Wildlife and its Mosquito Control Commission. The MAC shall be chaired by the permittee's representative.

Original Technical Justification for Special Condition 6: Long-term abundance data will provide information as to population status of various aquatic species compared to past levels; information on the factors that may cause changes in their populations over time; and provide a basis for better understanding the interactions and relationships between the species so as to apply this knowledge in making prudent resource management decisions. The program will be conducted pursuant to a Department approved work plan which will contain a schedule for reporting the monitoring results.

Compliance with Special Condition 6: Biological Monitoring

PSE&G developed and implemented a biological monitoring program for the Estuary as required by the Permit. The MAC was created in accordance with this Permit requirement. The MAC membership currently includes representatives of PSEG, NJDEP, DNREC, USFWS, NMFS and DELEP, as well as four independent scientists – Edward Houde, Ph.D. of the University of Maryland – Chesapeake Biological Laboratory Center for Environmental and Estuarine Studies; Ronald T. Kneib, Ph.D., of the University of Georgia - Marine Institute; Nancy Rabalais, Ph.D., of Louisiana University Marine Consortium, Rick Deriso, Ph.D., of Scripps Oceanic Institute and Joseph Miller, formerly with USFWS. With MAC's input and approval, PSE&G developed a Biological Monitoring Work Plan ("BMPWP") which was approved by the Department.

To comply with the biological monitoring program condition PSE&G performed a number of studies. The data from each year's monitoring are summarized and discussed in annual progress reports submitted to the Department by June 30 of the following year. A brief description of each study as well as its objective is included below. Following the descriptions, are an explanation of the Department's determination regarding these studies as well as any permit conditions that are proposed in this renewal permit.

Biological Monitoring: Fisheries Issues

Thermal Monitoring and Biothermal Assessment for Representative Important Species

A thermal monitoring program has been conducted to collect temperature and hydrodynamic data required as input to mathematical models to characterize the thermal plume in both the near-field and far-field. In addition, the permittee has completed a biothermal assessment. A summary of these studies as well as the Department's determination regarding these studies is further described under Section 316(a).

Entrainment Abundance Monitoring

The objective of entrainment abundance monitoring is to estimate the number and size distribution of ichthyoplankton entrained. Sampling was conducted six times over 24-hours three days per week from April through September, conditions permitting; and one day per week from October through March, conditions permitting, during 1997 and 1998. In 1995 and 1996, samples were collected one day per week, conditions permitting, throughout the year. For all years of sampling, all specimens collected were identified to the lowest practical taxon and life stage, and counted. In addition, total length was measured to the nearest millimeter for a representative subsample of each target species and life stage per sample.

Impingement Abundance Monitoring

The objective of impingement abundance monitoring is to estimate the number and size distribution of target species impinged. Based on the annual Biological Monitoring Program Reports, impingement samples were collected ten times over 24 hours one day per week, conditions permitting, during 1995 and 1996. During 1997 and 1998, impingement sampling was conducted three days per week. Samples were collected by diversion of screen wash water into an impingement sampling pool. During all years, all fish collected were sorted by species and counted, and the condition (live, dead, or damaged) of each specimen was recorded. The length of each specimen was measured for a subset of each target species along with the total weight for all specimens of each species. In addition, information on station operation, sampling information, salinity and environmental conditions was recorded.

The data from each year's impingement and entrainment monitoring activities is summarized and discussed in annual progress reports that are submitted to the Department by June 30 of the following year.

Department's Determination and Contractor Review Regarding Entrainment and Impingement Abundance Monitoring

ESSA conducted a complete review of entrainment and impingement sampling where a summary of this review, as well as an explanation of the importance of this sampling with regard to subsequent analysis, is included later as item X.3 in the section entitled "Special Studies Proposed in this Renewal Permit". To address ESSA's concerns regarding entrainment and impingement, the Department is requiring additional studies relating to entrainment and impingement which are described further in this same section.

Likewise, based on ESSA's concerns, the Department is also recommending increased entrainment and impingement abundance monitoring. Because the frequency of entrainment and impingement abundance sampling is specified in the Biological Monitoring Program, which shall be approved by both the Estuary Enhancement Program Oversight Committee (EEPOC) and the Department, this increased sampling frequency shall be set forth in a revised Biological Monitoring Program.

Proposed Permit Condition Regarding Entrainment and Impingement Abundance Monitoring

Entrainment Abundance Monitoring - until such time as an improved entrainment sampling plan is developed, approved, and implemented as part of a Biological Monitoring Program, the permittee shall continue to conduct entrainment sampling during normal Station operations at a minimum frequency of three days per week, from April – September and once per week from October through March, weather conditions permitting. During normal operations, nighttime sampling shall be included and a minimum of six abundance samples shall be collected per sampling day, weather conditions permitting.

Impingement Abundance Monitoring - until such time as an improved impingement sampling plan is developed, approved, and implemented as part of a Biological Monitoring Program, the permittee shall continue to conduct impingement sampling during normal Station operations at a minimum frequency of three times per week, weather conditions permitting. During normal operations, nighttime sampling shall be included and a minimum of ten samples shall be collected per sampling day, weather conditions permitting.

The results of all entrainment and impingment abundance monitoring shall be reported annually in the Biological Monitoring Program.

Elimination of Impediments to Fish Migration

Biological monitoring to document the use of the installed fish ladders and upstream impoundments was performed as a component of the Biological Monitoring Work Plan. This data, as well as the Department's determination regarding this data, is described previously in **Compliance with Special Condition 4**.

Bay-Wide Abundance Monitoring

To comply with this permit condition, the permittee conducted two studies, namely the PSE&G Bay-wide Bottom Trawl Survey and the PSE&G Baywide Beach Seine Survey. These studies focused on nine target species including: weakfish (*Cynoscion regalis*), bay anchovy (*Anchoa mitchilli*), white perch (*Morone americana*), sriped bass (*M. saxatilis*), spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), American shad (*Alosa sapidissima*), blueback herring (*A. aestivalis*), and alewife (*A. pseudoharengus*).

The on-going **PSE&G Bay-wide Bottom Trawl Survey** is conducted to compliment the long-term program conducted by DNREC. The objective of the PSE&G Baywide Bottom Trawl is to determine relative species abundance and distribution of juvenile and small adult fish populations in the Delaware Estuary. Bay-wide bottom trawl sampling is conducted during daylight hours with a 4.9 meter otter trawl. In 1995 and 1997 sampling was conducted once per month from April through October. In 1996 and 1998 sampling was conducted once in April and twice per month during May through October for a total of 13 sampling events. Daylight is defined as the period one hour after sunrise to one hour before sunset. A total of 40 samples are collected from eight river zones ranging from the mouth of the bay to the Delaware Memorial Bridge. Sampling stations within each zone are randomly selected. Stations are allocated among the zones proportional to the size and historical catch of the zones.

The **PSE&G Bay-wide Beach Seine Program** is designed to provide data on the distribution and abundance of fish populations in the shore zone of the lower Delaware Estuary. This program compliments the long-term NJDEP Beach Seine Program by providing data on a time frame and geographical scope unavailable under the NJDEP Beach Seine Program. The on-going PSE&G Bay-wide Beach Seine Program is conducted from August through October. The perimeter of the low Delaware River and Delaware Bay is divided into 32 equal-length regions. Each region is further partitioned into 0.1-nautical mile segments. One station per region is randomly selected from each of the 32 regions. Eight additional samples are collected from Bay front locations adjacent to PSE&G marsh restoration sites. The gear has been 100 by 6 foot bagged haul seine with a 3/8 inch nylon mesh, identical to the gear employed by NJDEP. The seine was set by boat from the shore and pulled in the direction of the prevailing tide, wind and surf as conditions required to result in the best deployment of the gear. Water quality parameters, including water temperature, salinity, dissolved oxygen and water clarity were measured in near surface waters at each seine sampling station.

<u>Department's Determination Regarding Compliance with Bay-wide Abundance Monitoring</u>

The broad issue of fisheries monitoring data is an integral part of the Section 316(b) Determination. The Department's contractor, ESSA, has conducted a comprehensive review of the Section 316(b) Determination and hence the fisheries data. A summary of ESSA's review is included in the Section 316(b) Determination which is discussed later in this fact sheet.

Although the permittee has complied with the bay-wide monitoring requirements set forth in the Biological Monitoring Program, the Department has determined that improved biological monitoring is needed to further enhance the general understanding of the fish populations in the Delaware Estuary. As a result, the Department <u>is hereby requiring that an improved biological monitoring program be developed</u> for the EEPOC's consideration and the Department's approval as a condition of this NJPDES permit. This is further discussed at the end of this section.

<u>Department's Determination Regarding the need for Review and Discussion as to the Appropriateness of the Representative Important Species</u>

Given that populations of representative important species are subject to many changing factors over time, the Department is hereby requiring the permittee to include a discussion as to the appropriateness of the representative important species (RIS) in its improved biological monitoring program for the purposes of Section 316(a) and Section 316(b) of the Clean Water Act. Consideration should be given to the appropriateness of the existing RIS as well as the possible inclusion of atlantic silverside and atlantic menhaden. The inclusion of these two species has been suggested in several Monitoring Advisory Committee (MAC) meetings by several MAC members.

Detrital Production Monitoring

The objective of the detrital production monitoring is to determine the vegetation structure, productivity, and detrital production of restored marshes as compared to the reference marshes. Data from this monitoring are primarily used to assess the basic vegetation structure and productivity of natural estuarine marshes that are being achieved through restoration at the degraded marsh sites. The data have also been used to determine the contribution of the restored marsh to estuarine food webs and the capacity to support fish production.

Detrital production at the wetland restoration sites has been monitored using a combination of aerial photography and field sampling methodologies. Aerial photography has been conducted annually at all restoration sites to map changes in the vegetative communities associated with the restoration process. Quantitative field sampling has also been conducted on four representative restored wetland sites (two formerly diked salt hay farm sites and two Phragmites-dominated sites) and two reference sites to assess changes in community abundance and composition for vascular plants as well as benthic and epiphytic algae.

Sampling has been conducted during the peak growing season, in quadrates located along fixed transects at each study site. This sampling consists of percent cover, vegetation height, and calculation of aboveground biomass for the vascular plants; and biomass and productivity of the benthic and epiphytic algae.

Benthic algae sampling has been conducted during alternate years once during the peak growing season along fixed transects at each study site.

Department's Determination Regarding Compliance with Biological Monitoring Program: Detrital Production Monitoring

Ongoing detrital production monitoring and quantitative detrital production field sampling is still necessary. Although not a specific requirement of this renewal permit, the Department encourages any increases in sampling frequencies and/or locations with regard to this monitoring. This requirement is therefore retained in this renewal permit.

Because the study objectives of the epiphytic and benthic algal monitoring has been fulfilled, the Department is not requiring further continuation of this monitoring.

Residual Pesticide Release Monitoring

The objective of residual pesticide monitoring was to assess the potential for release of residual pesticides from restored marshes at the salt hay farms. Data from this program were used to address the issue of potential offsite transport of residual pesticides and any associated ecological risk. Composite sampling of the water and suspended sediments has been conducted in the three representative salt hay impoundment wetland restoration sites following dike breaching and again at approximately two, four, and eight weeks subsequent to the first dike breaching.

Department's Determination Regarding Residual Pesticide Release Monitoring

Because the dikes have already been breached at the salt hay farm wetland restoration sites, this requirement is no longer necessary for the existing salt hay farm wetland restoration sites. However, in the event that replacement acreage is deemed necessary, this requirement will be retained for any diked salt hay farm sites that may be used in the future as replacement acreage.

Fish Utilization of Restored Wetlands

The objective of the fish habitat utilization monitoring was to document the seasonal abundance and community composition of fishes using the restored marshes. This monitoring was conducted on four restoration sites (two formerly diked salt hay farm sites and two Phragmites dominated sites) and two reference marsh sites. The results were used to compare abundance indices and community descriptors of the fishes sampled within restored and reference marshes in different salinity regimes (as indicators of the progress of the restoration program); and to examine the length and weight relationships for the fish RIS collected in each marsh and near shore bay sample (as indicators of the quality of the habitat in each area). These analyses have then been used to address two issues: (1) whether restored marshes provide additional critical habitat for valued species; and (2) how closely species distributions and abundances in restored marshes match those of reference marshes. Thus, these data illustrate the success of marsh restoration relative to reference marshes.

The study was conducted from April through November in 1996, 1997, 1998 and 1999. Reference sites and their associated tidal creeks were selected based upon their similarity to the restored sites in terms of area, salinity regime, and other physical parameters.

Department's Determination Regarding Compliance with Fish Utilization of Restored Wetlands

The premise of the wetland restoration efforts is to support production of the species at issue at Salem by increasing their production through detrital production. Understanding the fish utilization of wetlands is therefore important. Because all the wetland restoration sites have not yet met the final success criteria, these sites are continuing to evolve. This requirement is therefore retained in this renewal permit to continue an understanding of fish utilization.

Food Habits of Fish Utilizing Restored Wetlands

A food habits and trophic linkage study of finfishes was conducted in restored wetlands and the results compared to reference wetlands. Specimens were obtained from the fish utilization studies described above.

The total stomach contents weight divided by the total fish weight for each site/tide/species/length class stratum has been calculated for all four target species. A gravimetric, taxonomic prey analysis was performed on weakfish, white perch, spot, and a subsample of bay anchovy. Diet composition has been determined to the lowest practical taxonomic level.

Department's Determination Regarding Food Habits of Fish Utilizing Restored Wetlands

The food habits study has been completed and the study objectives have been fulfilled. Therefore, this requirement has not been retained in this renewal permit.

Supplemental Wetlands Restoration Related Studies in Addition to the BMPWP

In addition to the Permit-required monitoring program, PSE&G undertook supplemental studies to provide additional information on the functions of estuarine marshes in the mid-Atlantic region and specific data on fish utilization (both young of year and large predators), growth, reproduction, and movement within PSE&G's restored wetlands as well as the linkage of these marshes to specific migratory species.

The Contents of the Administrative Record included at the end of this Fact Sheet contains a listing of all components of the March 4, 1999 NJPDES application, including the titles of these additional studies.

Proposed Permit Condition Regarding Biological Monitoring Plan

To summarize the proposed permit requirements above, as well as in the other relevant sections that pertain to the biological monitoring program, the proposed biological monitoring program required under this renewal permit shall include:

- continued monitoring for adult and juvenile passage of river herring in connection with fish ladder sites. Stocking of impoundments shall also be continued until such time as the adults using the ladder meets the minimum number of adults calculated per acre for the minimum number of juveniles (1005 / acre).
- improved impingement and entrainment abundance monitoring
- improved bay-wide abundance monitoring
- review and discussion as to the appropriateness of the representative important species
- continued detrital production monitoring, including vegetative cover mapping, quantitative field sampling and geomorphology.
- continued study of fish utilization of restored wetlands

- other special monitoring studies as may be required by the Department and/or recommended by the EEPOC. Residual pesticide release monitoring could be required for any replacement acreage deemed necessary.

A proposed Biological Monitoring Work Plan shall be distributed to the Department and EEPOC members by the effective date of the permit (EDP) + 3 months. As described previously under **Special Condition 3**, the Department has determined that it is appropriate and beneficial to merge the MPAC and MAC under one oversight committee, namely the EEPOC. The new Biological Monitoring Plan shall be implemented within 60 days of the Department's approval.

Special Condition 7: Special Condition 7 of the July 20, 1994 permit relates to financial assurance requirements. Because the land acquisition requirements have been met and the fish ladders have been constructed, this requirement is no longer necessary and has not been retained in this renewal permit. As described under **Special Condition 3**, it is important to note that the Department may deem it necessary to require replacement acreage for any lands under Special Condition 3 which are deemed "failed".

Special Condition 8: Special Condition 8 relates to "force majeure" and any delays in the compliance with Special Conditions 2, 3, 4, 5 and/or 6 as described above. Because these requirements have been met, this requirement has not been retained. Force majeure conditions are contained in the NJPDES Regulations and apply to this facility even though they are not specifically reiterated in this permit.

Special Condition 9 – Special Condition 9 relates to the termination of the Section 316(a) variance granted in this permit or termination of this NJPDES permit based on the permittee's non-compliance with any of the terms or conditions of this permit. This requirement is still applicable and has therefore been retained in this renewal permit. This requirement has been included in Part IV.

Special Condition 10: Special Condition 10 relates to the submission requirements for all documents required by the Special Conditions specified in Part IV, including without limitation biological monitoring workplans and feasibility studies etc.. This requirement has been retained in the renewal permit and is specified in Part IV. This condition is included in its entirety in Part IV.

Special Condition 11: Special Condition 11 relates to the submission requirements for Sections 316(a) and (b) as part of any renewal application. This condition states that the following information shall be submitted:

Section 316(a)

- a review of whether the nature of the thermal discharge or the aquatic population associated with the Station have changed

- whether the measures required under the Special Conditions have assured the protection and propagation of the balanced indigenous population
- whether the best scientific methods to assess the effect of the permittee's cooling system have changed
- whether the technical knowledge of stresses caused by the cooling system has changed.

Section 316(b)
- an evaluation of whether technologies, their costs and benefits, and potential for application at Salem have changed

Department's Determination Regarding Compliance with Special Condition 11

The permittee has provided a Section 316(a) Demonstration and a Section 316(b) Demonstration as part of its March 4, 1999 application, where these demonstrations address all the issues identified above. Therefore, the permittee has fully complied with Special Condition 11. Given the importance of this information, a summary of regulatory history, overview of studies performed, regulatory standards and any proposed permit requirements has been provided below for both Sections 316(a) and Section 316(b).

1. Section 316(a) Variance

Regulatory History prior to issuance of July 20, 1994 permit

On page 54 of the 1990 Draft Permit, a determination was made that closed cycle cooling was an "available technology...[for reducing] the adverse effects of the cooling water intake and thermal discharge which threathen[ed] the balanced, indigenous community of receiving waters....". This determination was made under Section 316(a) after considering both thermal discharge and intake effects on the "protection and propagation of a balanced indigenous population". Having made that determination, the Department concluded that closed cycle cooling was also BTA for minimizing adverse environmental impact under Section 316(b).

USEPA's comments on the 1990 Draft Permit referred the Department to USEPA determinations in other power plant cases under Section 316. Two USEPA references to Decisions of General Counsel discuss the relationships between Sections 316(a) and (b), namely in Re Central Hudson Gas and Electric Corporation, OGC 63, ZELPS Fed. Ref. Service, USEPA, NPDES Permits 371 (July 29, 1977) and OGC 75, ZELPS Fed. Ref. Service, USEPA, NPDES Permits 441 (January 15, 1979). While acknowledging that the application of Section 316(a) and Section 316(b) should be coordinated to the extent possible, Opinion No. 63 provides, in pertinent part, that "... conditions may be imposed under Section 316(b) independent of any proceeding to modify an effluent limitation under Section 316(a)..."(OGC 63, ZELPS at 378) and, further, that "... there is no legal basis for predicating determinations under Section 316(b) on determinations under Section 316(a)." OGC 63, ZELPS at 379.

With respect to the thermal component of the Station's discharge, the Department stated in its 1990 Draft Permit that its consultant had concluded that adverse effects from the thermal loading would be "restricted" and did not need to be reduced to protect the balanced indigenous population. In sum, the administrative record demonstrated that the thermal component of Salem's discharge assured the protection and propagation of a balanced, indigenous population.

Section 316(a) Variance under July 20, 1994 Permit

On page 151 of the Fact Sheet of the draft June 24, 1993 NJPDES permit, the Department determined that a thermal discharge at the Station, which does not exceed a maximum of 115°F (46.1°C), is expected to assure the protection and propagation of the balanced indigenous population. Accordingly, the Department determined that a WQBEL would be more stringent than necessary to assure the protection and propagation of the balanced indigenous population. In summary, the Department granted PSE&G's request for a variance pursuant to Section 316(a) and proposed thermal limits which would allow the continued operation of the existing once-through cooling water system with an intake flow limit of 3024 million gallons per day.

Background to the Thermal Plume as well as an Overview of Thermal and Biothermal Studies Performed as part of the Section 316(a) Demonstration

Description of Thermal Plume

The thermal plume is created as the Station's cooling water is discharged to the Estuary. After the water is withdrawn from the Estuary, it passes through the cooling water system to the condensers where its temperature is raised as the steam is condensed from the turbines. At the 30-day average flow rate of 175,000 gpm per pump, the increase in water temperature across the condensers ($\Delta T_{condenser}$) is 14.8°F. The expected maximum $\Delta T_{condenser}$ is 18.6°F, at the expected minimum flow rate of 140,000 gpm per pump. The maximum $\Delta T_{condenser}$ can occur when fouling reduces pump flow rates or when some circulating pumps are not operating.

Overview of Field Surveys and Thermal Modeling

In the thirty-year period between 1968 and 1998, a variety of physical and numerical modeling and field data collection programs have been implemented to characterize the Salem thermal plume. The complexity of these studies has increased over the years as science and technology have advanced. As a result, more and more detailed information has been gathered about the thermal plume, particularly in the vicinity of the discharge itself. A comprehensive description of the methodologies and findings of the various thermal monitoring programs performed prior to issuance of the July 20, 1994 permit is included in the Section 316(a) Demonstration which is part of the March 4, 1999 application. A description of studies performed subsequent to issuance of the July 20, 1994 permit is included below.

Recent field surveys and the times that they were conducted include: the Estuary hydrodynamic survey (March – July 1995); ambient condition survey (July 1997); 1-unit survey (October 1997); and the Modified Thermal Monitoring Program, which was a 2-unit survey, (May – November 1998).

As described previously in **Compliance with Special Condition 6: Biological Monitoring**, the permittee was required to perform a comprehensive thermal monitoring program and a biothermal assessment as part of its Biological Monitoring Program. The Original Thermal Monitoring Program (TMP) was submitted to both the MAC as well as the Department for comment. After some revisions based on comments from the Department, the BMPWP was revised then subsequently approved on April 6, 1996. The planned implementation of the Original TMP was delayed due to an extended outage of both units beginning in the spring of 1995.

When both Units returned to full power operation in May 1998, implementation of the Original TMP was not possible due to time constraints. To accommodate this conflict, PSE&G prepared proposed revisions to the TMP which were submitted to the Department for approval as well as to the MAC for technical advice. After considering the input from the MAC and making some revisions as a result, the Department approved the Modified TMP on May 5, 1998.

The Modified TMP (MTMP) was implemented in late May 1998 when Units 1 and 2 were operating near full capacity. This implementation, which is termed the Two-Unit Survey, provided a comprehensive data set for understanding the hydrodynamic transport characteristics of the Estuary. Components of the MTMP included: fixed moorings to estimate the heat contribution from the marshes and ambient river temperatures; shipboard surveys to measure the spatial variability of river temperatures and salinity, dye-tracer studies to measure the mixing of the discharge, infrared surveys of the nearfield, hydrodynamic surveys and marsh surveys. The 1998 hydrothermal modeling components of the MTMP used these data to calibrate and verify a set of computer models, namely the ATM (Ambient Temperature Model), CORMIX (near-field), RMA-10 (far-field) and the Total Temperature Model. Models are critical to understanding the receiving water conditions during Salem's operations. Lacking the ability to observe all conditions, including those extreme conditions of importance for biological characterizations and assessments, observations must be combined with modeling. Models also provide means to simulate actual conditions or scenarios that might exist in the future as well as temperature fields in the Estuary with and without Station operations. These simulations are necessary to derive estimates of ΔT contours, which are required for the Biothermal Assessment and other regulatory analyses. Once calibrated, these models were then applied to predict the ΔT fields, size, trajectory, and other characteristics of the thermal plume, and to compute seasonal variations of water temperatures in the thermal plume. In some cases, model improvements were implemented for site-specific Station applications. The data collection program was designed specifically to support the models. Diagrams of the thermal plume at the end of flood and end of ebb tide are included as E-2 Figure V-53 and E-2 Figure V-54.

Characterization of Thermal Plume Based on previous 316(a) Demonstrations versus Current Application

As described in the March 4, 1999 application, the thermal plume consists of a near-field region, a transition region, and the far-field. The near-field, which is also referred to as the "zone of initial mixing" (ZIM), is a small region within the thermal plume where the mixing of the Salem thermal discharge with the waters of the Estuary is dominated by the momentum of the thermal discharge. In the 1999 Application, the length of the near-field is approximately 300 feet during running tides (flood and ebb), and approximately 1000 feet during the times of slack water for Two-Unit operations. The length is measured along the centerline of the ZIM, which may have a curved shape depending on the magnitude and direction of the local currents in the vicinity of Salem. The transition regions extend from the end of the near-field to the beginning of the far-field. In the 1999 Application, the length of the transition region is taken to be approximately 700 feet for the four principal phases of a tide (namely, ebb, end-of ebb, flood, and end-of-flood). Except for slack tides, the velocity at the end of the transition region is assumed to have a magnitude equal to the ambient current. The far-field comprises the remainder of the thermal plume and is the region where mixing is controlled by the ambient currents. The boundary of the far-field, which is also the boundary of the thermal plume, is often delimited using a line of constant ΔT (or ΔT isopleth). In the July 20, 1994 NJPDES permit, the thermal plume is delimited by the 1.5°ΔT isopleth for the summer months (June - August) and the 4.0°F ΔT isopleth for the non-summer months (September - May).

The thermal plume has been characterized in past 316(a) Demonstrations and related permit submittals. Once Unit 2 came on line in 1982, the thermal discharge and thermal plume have remained fundamentally the same except as Station operations vary (e.g. outages, maintenance etc.). Although dredging of the navigation channel has altered the Estuary's circulation, this occurred mainly in the years before the Station was constructed. The plume is characterized by a very small area of more elevated temperatures in the immediate vicinity of the discharge that cools rapidly as the discharge surfaces and spreads, and a larger area of mildly elevated temperatures.

A comparison of the results of the characteristics of the current thermal plume included in the current application versus previous applications is as follows:

Characteristic	Current Application	Previous Applications
Surfacing distance	<100 feet	Approximately 300'
Dilution at point of surfacing:	Approximately 2	Approximately 2
Surface area of 4°F isotherm	45 - 250 Acres	210 – 1011 Acres
Cross-section area of 4°F isotherm:	6-20%	1-5%
Length of 1.5 °F isotherm		
Upstream:	43,000 feet	37,000 feet
Downstream:	36,000 feet	36,000 feet

As illustrated, the plume characterization collected in the most recent demonstration shows that the surface area of the 4°F isotherm is smaller than in past demonstrations.

Biothermal Assessment

The Biothermal Assessment included in the March 4, 1999 application is an assessment of the effects of the thermal plume on the biological community. This assessment relies directly on the results of the thermal plume modeling described above. The purpose of the biothermal assessment is to identify the likelihood and magnitude of biothermal responses elicited by Salem's thermal discharge and to assess their significance to the key species and the biological community. In PSE&G's 316(a) Demonstration, there were five sequential steps to the biothermal assessment: (1) Review of regulatory standards and decision criteria; (2) Evaluation of biological vulnerability (critical functions, biotic categories); (3) Selection of Representative Important Species (RIS); (4) Detailed evaluation (Predictive, Retrospective - No Prior Appreciable Harm); (5) Overall evaluation of "balanced indigenous community" (BIC).

As described previously, the discharge and plume can be characterized by high velocity, buoyance, turbulence and rapid temperature reduction. The potential for exposure to biota is generally low where the biological resistance to impacts is often high. The application contains two biothermal assessments of the Salem plume, a predictive assessment and a retrospective assessment. The predictive assessment, in accordance with the applicable guidance issued by the United States Environmental Protection Agency ("USEPA") uses reasonable worse case assumptions to project the maximum likely extent and duration of exposure by the (RIS) to the elevated temperatures of the Salem plume, and then evaluates the potential adverse effects of such exposures based on the results of laboratory tests on the effects of heat on those species. To provide some background, RIS species for the Section 316(a) demonstration include bay anchovy, weakfish, white perch, blueback herring, alewife, American shad, blue crab, Atlantic croaker, striped bass, spot, opossum shrimp and scud. PSE&G's evaluation, which also takes into account the effects on the RIS of nearby thermal discharges other than Salem, the interaction of the heat in the plume with other pollutants, and fish losses at the Salem intake, concluded that the discharge would not have any adverse effect on any RIS populations. The essential basis for this conclusion is that the area of more elevated plume temperatures in the immediate vicinity of the discharge is very small and larger fish avoid it, while the less elevated temperatures in the remainder of the plume are too low to have adverse effects.

The retrospective assessment examined abundance trends for RIS, which show that for the most relevant RIS, trends are stable or increasing. The retrospective assessment was conducted in two parts. First, specific biotic components potentially vulnerable to the Station's thermal discharge were evaluated to determine if there were changes in species composition or abundance attributable to Salem's thermal discharge. Second, the evaluation focused on trends in the abundance of RIS populations. The results of these evaluations revealed that the changes in species composition or overall abundance were within the range of natural variation and that juveniles of most species showed statistically significant increases in abundance. Other data was examined to identify any adverse effects of the plume, in conjunction with other influences including the Salem intake, on fish populations. PSE&G contends that no such effect was found.

Thermal Surface Water Quality Standards for Zone 5 of the Delaware River and Section 316(a) Regulatory Conditions

The Department's thermal surface water quality standards (SWQS), at N.J.A.C. 7:9B-1 et seq. for Zone 5 of the Delaware River, require that the water temperature in the receiving water not be raised by more than 4°F (2.2°C) during the period from September through May and no more than 1.5°F (0.8°C) during the period from June through August, nor shall the maximum temperature exceed 86°F (30°C), except in designated heat dissipation areas not longer than 3500 feet measured from the point of discharge.

PSE&G requires a Section 316 variance from the SWQS in that the physical dimensions of the thermal plume during the summer, as measured by a 1.5°F (0.8°C) above ambient isotherm, extend beyond the mixing zone specified in these standards and the maximum temperature at 3500 feet may exceed 86°F (30°C). As described previously, Section 316(a) of the CWA provides that alternative limits may be applied to thermal discharges which exceed technology-based or water quality-based effluent limits, upon a showing that the alternative effluent limits assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the receiving waterbody.

Proposed Section 316(a) Variance in this renewal permit

The Department acknowledges that the most recent plume characterization, which is a comprehensive effort with regards to field data collection and modeling, differs somewhat from the plume characterizations in past 316 demonstrations. However, the Department agrees that the Station operations and the resulting physical thermal plume have not significantly changed since the onset of Station operations, with the exception of extended outages. The Department also agrees that the velocities associated with the ZIM are high and available data shows that RIS species could not reside in this area of biological significance for very long. The Department notes that the trends of most RIS species appear to be increasing as documented in Appendix J of the March 4, 1999 NJPDES application.

Therefore, based on a review of the current data and modeling pertaining to the thermal plume as well as the biothermal assessment, the Department has determined that a variance under Section 316(a) is warranted. A thermal discharge at the Station, which does not exceed a maximum of 115° F (46.1° C) is expected to assure the protection and propagation of the balanced indigenous population. These effluent limitations for temperature are set forth in Part III-B/C as described previously. In addition, effluent limitations are also retained for heat in this proposed renewal permit (applied to Units 1 and 2).

Renewal of Section 316(a) Variance

As discussed above, the Department proposes to grant a variance pursuant to Section 316(a). Procedures for reissuance of a Section 316(a) variance are virtually unchanged from an initial Section 316(a) determination.

If upon renewal, the permittee wants the variance to be continued in any renewal permit, the request for the variance along with a basis for its continuance, must be submitted at the time of application for the renewal permit. In the event that the permittee wants the variance to be continued, the Department's Section 316(a) determination will include, but not be limited to, a review of whether the nature of the thermal discharge or the aquatic populations associated with the Station have changed; whether the measures required under the proposed existing permit have, in fact, assured the protection and propagation of the balanced indigenous population; whether the best scientific methods to assess the effect of the permittee's cooling water system have changed; and whether the technical knowledge of stresses caused by the cooling system has changed. This requirement is included in Part IV.

Any Future Alterations to the Thermal Discharge

In accordance with N.J.A.C. 7:14A-16.4, the permittee is required to notify the Department of any changes to its discharges, including any additional heat or temperature loadings, that may occur as a result of changes to the Station's operations. This notification shall be made in writing so that the Department can make a determination as to whether any Section 316(a) variance granted by the Department is still appropriate. The Department reserves the right to request additional thermal modeling data and/or a modified biothermal assessment. This condition is included in Part IV.

2. Section 316(b) Determination

Under Section 316 (b), the Department must determine whether the location, design, construction, and capacity of the Station's intake structure reflects the best technology available (BTA) for minimizing adverse environmental impact.

Decisions under Section 316(b) concerning BTA for cooling water intake structures require a case-by-case determination and should include an evaluation of economic considerations. BTA is intended to mean the best technology available commercially at an economically practicable cost and, further, that the costs of a technology must not be wholly disproportionate to the environmental benefit to be gained. In the Matter of Carolina Power and Light Company (Brunswick Steam Electric Plant), NPDES Permit No. NC0007064 (November 7, 1977) at 31-32; In the Matter of Public Service Co. of New Hampshire (Seabrook Station), Case No. 76-6 (June 0, 1977) ("Seabrook Administrator's Decision") at 13; Letter from Cynthia C. Dougherty, Director, Permits Division, USEPA to John Fields, NJDEP.

Section 316(b) Best Technology Available Determination in July 20, 1994 Permit

As discussed in the June 24, 1993 Fact Sheet, the Department evaluated information on various alternative technologies, including their technical feasibility, biological effectiveness and associated costs (presented in PSE&G's 1984 Section 316(b) Demonstration, Versar's 1989 Report, PSE&G's 1991 Comments (Appendices J, K, and L) and PSE&G's 1993 Application Supplement). The alternative technologies having the greatest potential for application at the Station were determined to be (i) closed cycle cooling, (ii) wedgewire screens, (iii) variable speed pumps, (iv) fine mesh screens, (v) screen modifications to incorporate an improved fish bucket design, (vi) circulating water intake flow limitations, and (vii) behavioral barriers, i.e., sound deterrents.

With respect to the above referenced technologies, the Department concluded that : (i) the estimated cost of closed cycle cooling is wholly disproportionate to the environmental benefit to be realized; (ii) wedgewire screens are not an available technology given the volume of once-through cooling water used by the Station and potential for biofouling due to the Station's location; (iii) variable speed pumps are not an available technology for application at the Station since the lower intake flows would lead to higher cooling water temperature causing additional stress to entrained organisms possibly resulting in no net environmental benefit; (iv) fine mesh screens are not an available technology for application at the Station since fine mesh screens may cause an overall increase in impingement mortality rates for early life stages of many species; (v) recent developments had occurred, with respect to the cooling water intake structure traveling screens, which incorporate an improved fish bucket design enabling the Department to demonstrate it to be an available technology at a cost which is not wholly disproportionate to the environmental benefits to be realized; (vi) a restriction on the cooling water system intake flow to a monthly average of 3,024 MGD (present average flow) is an available technology at a cost which is not wholly disproportionate to the environmental benefits to be realized; and, (vii) the study of fish behavioral barrier technologies, specifically the utilization of sound deterrents, is an available technology at a cost which is not wholly disproportionate to the environmental benefits to be realized.

Based on this review of available technologies, the Department determined that the existing cooling water intake structure, in conjunction with the screen modifications, improved fish bucket design, a cooling water intake flow limitation, and a sound deterrent study, to be BTA under Section 316(b) in its July 20, 1994 permit.

Overview of Alternate Intake Protection Technology Analysis included in the March 4, 1999 Application

The BTA component of the Section 316(b) Demonstration submitted as part of this application, employed a functional evaluation of potential intake-related technologies and other fish protection options involving a three-step process: (1) identify all potential fish protection options; (2) eliminate those options with no or limited proven biological effectiveness at circulating water intake structures; and (3) provide a detailed evaluation of the applicability of the remaining alternative to Salem.

The options included in this compilation were as follows:

Strobe Lights	Air bubble curtains	Acoustic sound
Infrasound	Mercury lights	Electric screens
Water jet curtains	Hanging chains	Chemicals
Visual keys	Hybrid barriers	Infiltration intakes
Porous dike	Gunderboom	Wedge-wire screens
Barrier nets	Bar racks	Traveling screens
Stationary screens	Rotary drum screens	Modified traveling screens
Fish pumps	Angled screens	Angled rotary drum screens
Inclined plane screens	Eicher screens	Modular Inclined Screens
Submerged traveling screens		Louvers

Each of these options was considered by PSE&G in a preliminary screening to identify those appropriate for further consideration. The factors applied in the preliminary screening were: (1) whether the option has a known effectiveness for reducing fish losses generally (and not necessarily in relation to the specific species involved at the Station); (2) whether further engineering development would be required for the option to be considered "available"; and (3) the relative engineering and/or biological advantages of one option over another. Potential application of the options to the specific conditions of the Station was not considered.

On the basis of the preliminary screening, four fish protection alternatives and three flow modification schemes were selected for detailed evaluation including:

Wedge-wire screens
Fine mesh screens
Modular inclined screens

Hybrid strobe light/air bubble curtain barriers
Seasonal flow reductions
Revised refueling outage schedules
Closed cycle cooling

PSE&G developed an analyses of five factors related to evaluating the impacts of implementing each alternative including: (1) relevant background knowledge derived from previous assessments of the feasibility of implementing the alternative at Salem; (2) engineering and technical considerations affecting implementation at Salem; (3) potential biological effectiveness in reducing intake losses at Salem; (4) other potential environmental impacts that could result from implementation at Salem; and (5) costs and operational impacts of implementing the alternative at Salem. For those options considered to be feasible for implementation at Salem, their costs and benefits were assessed.

Department's Contractor Review of Alternate Intake Protection Technologies

ESSA reviewed the Section 316(b) Demonstration which includes the alternate intake protection technologies. The contractor reviewed the alternatives in terms of engineering and operating feasibility, and ability to reduce fish mortality. Regarding each of the seven technologies, ESSA concluded the following:

Wedge-Wire Screens - "Although this technology is being used elsewhere (e.g. J.H. Campbell Plant Unit 3 - Lake Michigan, and Eddystone Station - Philadelphia Electric), its potential for application at Salem would be low. Salem's cooling water flow rate is more than five times the rate where this technology is presently used, and there are real concerns about biofouling and clogging with this technology at Salem."

Dual-Flow Fine Mesh Screens - "No fine mesh screening systems currently in use operate at flow velocities typical of Salem CWS, nor do these existing installations appear to deal with the same level of debris loading as at Salem ....This system does not appear to offer any significant advantages over the present Ristroph screen system already in place at Salem GS."

Modular Inclined Screens (MIS) - "These screens were originally developed for application at hydroelectric plants, and have never been used at a once through-cooling facility...Furthermore, MIS have only been evaluated in the lab or in small-scale testing, and there are no plans of which we are aware for this system to be installed at an operating fossil/nuclear station with a once-through cooling system. The application of this system for Salem has a lot of question marks."

Strobe Light/Air Bubble Combination - "Strobe light/air bubble combinations have been studied extensively. Like other behavioral system such as sound (as tested at Salem), there is a species specific response, and a strobe light/air bubble system will not work for all 11 RIS at Salem (neither will sound alone). There is evidence, however, that this system will work for several species found at Salem. However, its use as a sole deterrent system at Salem would be limited. To be considered at Salem GS, a strobe light/air bubble system must be used with other technologies as part of a hybrid system.."

Seasonal Flow, Revised Outages,and Retrofit with New Closed-Cycle System – "These options, in particular revised outages, have potential for application at Salem. However, more quantitative data on fish entrainment/impingement issues with respect to timing is required to better define the period when an option such as seasonal flow could be used to maximize reductions in entrainment/impingement.......Cooling towers, of course, would minimize entrainment/impingement events, but there are engineering issues with this technology at Salem."

In conclusion, ESSA states "An improved "fish defense system" using multi-sensory or hybrid technologies is recommended for further study at Salem GS. This recommendation is based on the observation that sound alone has shown limited success as a deterrent at Salem (the notable exception being ultrasound based in the 1994 cage tests, and external literature) Other systems should be integrated with sound to better reduce fish impingement. Initially, this integration should focus on behavioral systems since these are less costly and easier to implement than physical systems. However, if behavioral systems fail to significantly reduce impingement, then the more costly alternatives would need to be considered..."

Based on ESSA's review, the Department is requiring further study of a hybrid system as described later.

Cost/Benefit Analysis included in the 3/4/99 application

PSE&G included cost estimates in its March 4, 1999 application for those intake protection technologies for which a detailed evaluation was performed. This cost analysis included the following: 1) the costs associated with construction and installation necessary to implement the alternative; (2) incremental operating and maintenance costs associated with the alternative; and (3) the value of lost power at Salem as a result of construction and changes in continuing plant operations. These costs were converted to present value estimated as of January 1, 2001, expressed in 1998 dollars.

The benefits of the six alternatives that were quantified in PSE&G's analysis consist of commercial and recreational fishing benefits predicted to result due to additional fish protection alternatives at Salem. The methodology used to estimate benefits for each alternative is 1) convert impingement and entrainment losses to equivalent recruits (i.e. one year olds); 2) calculate resulting change in yield to the fishery; 3) divide commercial and recreational split; 4) determine wholesale commercial values; 5) determine recreational values; 6) calculate benefits from increases in RIS; 7) determine additional pounds of non-RIS; 8) calculate benefits from increases in non-RIS; 9) calculate annual benefits; 10) determine present value of benefits. To estimate the benefits of each of the alternatives, the number of fish protected by the alternative was converted to pounds of yield added to the fishery.

Based on these results, PSE&G contends that the costs of any of these alternatives would be wholly disproportionate to any benefits provided. As a result, PSE&G contends that none of these alternatives is best technology available for Salem.

Department's Contractor Review of Cost/Benefit Analysis

Regarding the costs of the intake protection technologies, ESSA states "The estimated construction costs of the various technologies are reasonable given normal uncertainty associated with pre-tender engineering cost estimation. The documentation and methodology presented in the Application seem reasonable for the major design modifications that would be required for the cooling water intake system." Regarding the benefits assessment, ESSA states "The purpose of the benefits assessment was to identify the benefits of the alternative BTAs for comparison with the costs. The assessment focused on benefits to the commercial and recreational fisheries of the Delaware River. The review, however, found that the documentation and written explanation of the benefits assessment was incomplete and generally did not provide a clear description of the justification of methodology, procedures and assumptions used in the assessment...."

Department's Review of Cost/Benefit Analysis and Requirements regarding Alternate Intake Protection Technologies

It is important to note Section 316(b) does not require a detailed cost/benefit analysis. See, Decision of the General Counsel, No. 63, July 29, 1977 at p. 382. Rather, decisions under Section 316(b) concerning BTA for cooling water intake structures require a case-by-case determination and should include an evaluation of economic considerations. BTA is intended to mean the best technology available commercially at an economically practicable cost and, further, that the costs of a technology must not be wholly disproportionate to the environmental benefits to be gained. See, In the Matter of Carolina Power and Light Company (Brunswick Steam Electric Plant), NPDES Permit No. NC0007064 (November 7, 1977) at 31-32; In the Matter of Public Service Co. of New Hampshire (Seabrook Station), Case No. 76-7 (June 10, 1977) ("Seabrook Administrator's Decision") at 13; Letter dated January 14, 1991 from Cynthia C. Dougherty, Director, Permits Division, USEPA to John Fields, NJDEPE. Under Section 316(b), a permitting agency has the ultimate burden of persuasion that any BTA measure that it requires is "available" for a given facility, and that its costs are not "wholly disproportionate" to environmental benefits. See, Decision of the General Counsel, No. 63, July 29, 1977 at p. 382.

PSE&G states that the strobe light/air bubble curtain technology has the lowest cost ($10 million) and might produce benefits of $1.4 million, thus having a net benefit of negative $8.5 million and a cost-benefit ratio of 7.0. A table showing the potential benefits to each RIS for the strobe light/air bubble curtain technology is included as F-VIII Table 2.

At this time, the Department is not requiring implementation of strobe light/air bubble curtain technology, as a component of a multi-sensory hybrid system, rather it is only requiring further study. As discussed previously, the cost value for the strobe light/air bubble curtain technology considers construction and installation costs as well as operating and maintenance costs (year-round). Therefore, the Department has determined that study of a multi-sensory hybrid system, of which strobe light/air bubble is a component of, is an available technology at a cost which is not wholly disproportionate to the environmental benefits to be realized. Study of a multi-sensory hybrid system is required as specified in Part IV and is considered by the Department to be a component of best technology available.

It is important to note that the Department is committed to requiring implementation of any cost-effective alternate intake protection technologies that will minimize impingement and/or entrainment effects. In sum, the Department is requiring the following:

(1) Study of a Multi-Sensory Hybrid System

- strobe light/ air bubble combination technology
- sound deterrent
- light attraction technologies such as mercury vapor light coupled with enhancements to the fish return system (e.g. fish pumps) to allow the fish to be returned to the estuary

These technologies shall be studied individually as well as in various combinations as a hybrid system. The objective of this study is to minimize impacts to those species that do not survive well off the intake travelling screens as well as those species that are most affected by Salem's operations (as indicated by conditional mortality rates).

The concerns and limitations documented by ESSA in its report for the 1994 Cage Tests; 1998 Cage Tests; and the in-situ tests shall be considered in the development of any Plan of Study with regard to any ultrasound technologies. Also related to ultrasound, far field attraction behavior or potential acclimation shall also be studied.

- PSEG shall present a Plan of Study regarding the above technologies to the Department within EDP + 6 months.
- Not later than sixty days after receipt of the Department's approval of the Plan of Study, PSEG shall implement the Plan of Study in accordance with the schedule approved by the Department subject to species availability.
- Not later than EDP + 36 months, PSEG shall complete the Plan of Study and file a report of the results to the Department in accordance with the schedule approved by the Department.

Department's Regulatory Position with regards to Section 316(b)

The cornerstone of PSE&G's March 4, 1999 application is the impact assessment where many of the analyses included in the application feed into this assessment. Likewise, Figure 1.1 of ESSA's report illustrates the interdependence of data and analyses in the application that were reviewed by ESSA. It is important to note that PSEG and the Department do not agree regarding definition of the term "adverse environmental impact". PSEG's position is that this term, as used in Section 316(b), is intended to address impacts only at the level of the population or above where determinations of an impact must be made on a case-by-case basis. Conversely, NJDEP and other states, such as New York, have considered the death of any fish at or through a cooling water intake to be an "adverse impact" which must be minimized through available technologies under Section 316(b). Based on this legal position, the Department has determined that it is therefore justified in requiring the pursuit of alternate intake protection technologies, to further minimize the impacts at the Salem Station.

Nonetheless, although the level of impacts may not be central to the Department's Section 316(b) Determination, it is important to understand Salem's direct effects on fish populations (through impingement and entrainment sampling and the resulting loss estimates) and the resulting effect on fish populations (which can be measured by conditional mortality rates). An assessment of these effects are integral to defining alternatives to minimize these losses.

Overview of Impact Assessment included in the March 4, 1999 application

Section 316(b) of the CWA addresses "adverse environmental impact" associated with the cooling water intake structures of a permit applicant's facility. There is no statutory or regulatory definition of "adverse environmental impact," and no authoritative regulatory assessment approach. Based on the statute, draft EPA guidance, and understanding of the relevant science, PSE&G has selected three benchmarks, each employing a somewhat different perspective, by which to address possible adverse environmental effects at Salem.

(i) Absence of Balance in the Indigenous Community of Aquatic Biota

This community structure benchmark is drawn from Section 316(a) of the CWA, where PSE&G contends that Congress views the loss of population or community level "balance" as an adverse environmental effect.

Data from the Estuary can be evaluated to determine whether, taking account of 30 years of changes in water quality, fishing pressure, and habitat, the past operation of Salem has upset or modified the balanced indigenous community of the Estuary. The following three indicators are used in this evaluation.

1) Whether the species composition of the Estuary is similar in pre-operational and operational periods;
2) Whether fluctuations in species abundance have remained within anticipated ranges; and
3) Whether there have been eruptions of nuisance species, non-indigenous species or species indicative of degraded conditions.

(ii) Continuing Decline in Abundance of Aquatic Species
This benchmark is drawn from biology and population dynamics. The benchmark evaluates whether any long-term continuous declines in RIS abundance have occurred, and, if so, whether the operation of Salem is the cause.

(iii) Fish Stock Sustainability Placed in Jeopardy
This benchmark, drawn from fisheries management, uses predictive models and fishery management reference points to evaluate the potential effects of Salem. The analysis performed for this assessment evaluates whether the effects of Salem, combined with the

existing effects of fishing, would significantly reduce the ability of fish populations to sustain themselves and place the sustainability of the stock in jeopardy.

Department's Contractor Review of Impact Assessment, as a component of Section 316(b)

In addition to the alternate intake protection technologies and cost/benefit assessment discussed above, ESSA reviewed the other components of the Section 316(b) Demonstration including the impact assessment; overview of biological sampling programs; and fisheries modeling. Important analyses which feed into the Section 316(b) demonstration are the Cumulative Effects Assessment (Appendix H), Compensation (Appendix I) and the Analysis of Trends for Finfish and Blue Crab (Appendix J).

ESSA has included the findings of its detailed review in Section 5.0 of its report. This includes a review of indicators of adverse impact; production and catch foregone, balanced indigenous community, trends and retrospective analysis, prospective stock jeopardy analysis as well as comments on the use of data in the application. In addition, in Section 2.0, ESSA included its findings on PSE&G's analysis of Conditional Mortality Rates (CMR's). Please refer to ESSA's report (included as Attachment A) for a comprehensive description of its review and findings regarding the fisheries and CMR analyses.

ESSA states, "Each of the three assessment endpoints chosen in the PSE&G Application (i.e., historical trends, long term sustainability, fish community structure) are confounded by changes in other stressors (i.e., water quality, changes in harvest). Inferences made on these assessment endpoints are therefore dependent on historical and future assumptions regarding other stressors. By contrast, assessment endpoints such as fish killed by entrainment and impingement and foregone production, are related directly to the impacts of the power plant intakes, are less confounded by other factors, and require fewer assumptions about unknown parameters." Based on such, the Department is hereby requiring PSEG to address ESSA's findings regarding the Production and Catch Foregone analysis only. The objective of this analysis is described later.

It is important to note that ESSA's report recommends further study of behavioral technologies as well as an improved fish return system. Based on the fact that ESSA did not recommend wedgewire screens, dual flow fine mesh screens, modular inclined screens and retrofit with a new closed-cycle cooling system are infeasible, **a revised fisheries analysis will not have a bearing on the inclusion of the above referenced alternative intake protection technologies at this time**. ESSA states that the intent of its recommended intake protection technologies (including the study of a multi-sensory hybrid technology and an enhanced fish return system) is to significantly improve Salem's system to reduce fish impingement, without incurring costs that are wholly disproportionate to the benefits.

Another important finding of the ESSA report pertains to the utility of biological survey data as it relates to the trends and the survey data for each RIS. This is discussed in Section 5.4.1.3 of the ESSA report. A useful chart is included as Table 5.17 which shows the appropriateness of the survey data for each RIS. The Department is requiring improved biological monitoring, as discussed under **Compliance with Special Condition 6**, which will aid in addressing this concern. Improved biological monitoring will also improve any future fisheries analysis including loss estimates.

Proposed Permit Condition

In sum, the Department is requiring the following:

(1) Further Analysis of Losses at the Station

The objectives of this analysis are as follows:

- The biomass lost to the ecosystem should be calculated either using a slightly modified version of the production foregone model for all RIS or the spreadsheet approach.
- The contribution of RIS other than Bay Anchovy to the forage available for commercial and recreationally important species should be examined. This has the potential to significantly increase the estimates of lost revenue in the fishery.
- A more detailed analysis of the levels of uncertainty in the production and catch foregone estimate needs to be considered.
- The estimates used for the survival rates of Age 0 - Blueback Herring used in the Appendix F4 analysis (March 4, 1999 application) should be reviewed given the different values used in Appendix G-6.
- The base case entrainment and impingement mortality estimates should be compared against the historical averages to ensure consistency.
- Projected increases in RIS abundance should be included in the estimates of catch and production foregone.
- The potential to customize intake protection strategies to minimize the impact of the plant on catch foregone and the biomass lost to the ecosystem should be further investigated.

PSEG shall utilize the advice of the EEPOC or other groups deemed appropriate by PSEG and/or the Department in completing this analysis.

3. Special Studies Proposed in this Renewal Permit

A. Entrainment and Impingement

DEP Contractor Review and Department's Determination regarding Entrainment Abundance Monitoring and Impingement Abundance Monitoring

ESSA reviewed all analyses in the March 4, 1999 application for which impingement and entrainment data is a significant input. This includes Appendix F (Section 316(b) Demonstration) as well as supporting appendices H and I. A complete listing of these appendices and their attachments is included in the Contents of the Administrative Record included at the end of this Fact Sheet. Regarding impingement and entrainment specifically, ESSA was required to "review the accuracy of PSE&G's entrainment and impingement mortality estimations..." As illustrated in Figure 1.1 of ESSA's report, it is important to understand that entrainment and impingement data are an essential building block for further analyses.

ESSA describes in its report "In the present 316(b) Demonstration, the estimation of entrainment is essentially used in two ways. First, the entrainment samples taken at the station are expanded to yield estimates of historical annual entrainment losses. These historical estimates provide a simple direct indicator of station impact from year to year.... Second, entrainment samples are expanded as above to yield losses which are placed in the context of the surviving population of juveniles to calculate a conditional entrainment mortality (CMR), i.e. mortality attibutable to entrainment by the station independent of other mortality sources). The CMR is used in subsequent modeling of the potential effects of the Salem GS at the population level."

ESSA noted the following with regards to the entrainment sampling:

- there appears to be an ongoing pattern of change to the protocols of the program where the shifts in the protocols necessitate the use of adjustments.

- interpolation and extrapolation were also necessary to estimate missing data where the program design did not provide for consistent coverage

- the predominant intake sampling locations and protocols have known biases that also require "correction" of the data.

- of the various adjustments made to the data set, the adjustments made for net extrusion is cause for the greatest degree of concern, because of the magnitude of the correction necessary.

- an additional source of entrainment mortality, not discussed in the documentation, are eggs and larvae that become impinged on the material clogging the screens. This material would get cleaned from the system by the high pressure sprays and disappear into the impingement/detritus discharge flow system.

ESSA concludes by stating: "The methods employed for interpolation/extrapolation of data are reasonable and generally conservative. Weaknesses in the data are explicitly acknowledged and various adjustments or correction coefficients have been developed and applied to attempt to correct for known biases. In this regard, the overall approach taken by the investigators working with the data is not unreasonable; in fact their attempts to make the most of an incomplete and biased data set are laudable. It is critically important when evaluating the conclusions based on the analyses to keep in mind that in order to conduct the 316(b) Demonstration, it was necessary for the investigators to substantially interpolate, extrapolate and adjust the data so the analysis could proceed."

In an effort to better understand any **future impingement/entrainment data sets**, particularly entrainment, ESSA recommends two studies and an expanded analysis as indicated below. In addition, to better understand the existing analyses, ESSA recommends an expansion to the current analysis as described below. Please refer to the ESSA Report for additional information regarding ESSA's review and the findings for impingement and entrainment sampling.

As recommended by ESSA in its report, PSEG shall conduct the following studies and analysis as described below:

Study of the Hydrodynamics at the Intakes of the Station

(a) The flow field in front of the intake and the existence of vortices at the intake shall be observed and photographed during: (1) an extreme low tide (2) when the current is strongest, namely at mid tide on the flood and mid tide on the ebb.

(b) The pumping records of each pump should be examined to determine if the flow distribution is asymmetrical among the intake bays, particularly the most northern bay and the most southern bay (i.e. two outer bays).

(c) The bathymetric chart of the area should be examined to determine the potential for a strong back eddy during the ebb in Ship Wreck Bay immediately to the south of the intake. If such an eddy exists it will be observable from shore and from the air when the ebb current is at a maximum. The chart may also provide insight in to the flow field entering the dredged channel from the side.

Study of Enhancements to Entrainment and Impingement Sampling

(a) An analysis of the optimum sampling frequency for entrainment and impingement shall be conducted considering any episodic nature of the entrainment process. This needs to take explicit account of the shape of the zone of entrainment as well as the hydrodynamic study discussed above.

(b) Alternative entrainment sampling methods with less process error shall be investigated.

PSEG shall present its findings regarding the Study of the Hydrodynamics at the Intakes of the Station and the Study of Enhancements to Entrainment and Impingement Sampling to the Department within EDP + 1 year. Based on the results of these studies, the Department may reassess and adjust the entrainment and/or impingement sampling frequencies and/ sampling locations. The Department may also define alternative entrainment sampling methods with less process error. Any such changes deemed appropriate and necessary by the Department shall be incorporated into the Biological Monitoring Program.

Expansion of Current Analysis with regard to Entrainment Sampling

(a) The uncertainty of the estimated historic annual entrainment loss estimates should be characterized and presented as ranges with maximum and minimum levels.

(b) Any error in the estimation of M, and the effect on CMR estimates with the Extended Empirical Impingement Model (EEIM) (which was used to derive estimates of CMR for alewife, blueback herring, American shad, white perch and spot) shall be investigated. The uncertainty with the CMR estimates shall also be characterized and presented.

These expanded analyses identified in (1) and (2) shall be submitted to the Department within EDP + 6 months.

B. Estimated Productivity of the Wetlands Restoration Sites

PSE&G States that the Wetland Restoration Sites and Fish Ladders are Producing Fish

Marsh restoration and the revival of the river herring runs are not yet fully complete and a widely acceptable common metric for quantifying all of the increased production is not readily at hand. Nevertheless, despite these constraints, it is important to consider the available evidence relevant to assessing the fish production benefits of these measures.

First, the evidence is clear that the restored marshes are quickly coming to have the form and function of "natural" marshes based on a comparison of restored verses reference marshes.

Second, bioenergetics modeling can be used to provide some indication of the marsh productivity. Though not a specific requirement of the July 20, 1994 permit, the permittee conducted a bioenergetics analysis for the salt hay farms to gain quantitative insight into the productivity of the marsh. The bioenergetics approach relies on fish captured in the marsh by the monitoring programs as well as on growth by predators feeding on fish produced in the tidal marsh. The bioenergetic method has limitations. This approach does not account for detrital export-based production which is important in Delaware Bay. Both small invertebrates and very early life forms of fish pass through the monitoring nests and are lost to the bioenergetics calculations. Similarly, the larger fish are able to avoid the gear. Finally, the restoration of the salt hay farms is not complete.

Third, there is evidence from the stable isotope analysis that top predator fish which migrate through the Estuary to the open coast carry with them the imprint of the energy flow from the marsh vegetation to the highest trophic level. Thus, the evidence shows that the restored marshes are producing food that is eventually consumed by upper-level predators, which would include many of the commercially and recreationally important RIS.

Fourth, the aggregated food chain model, which was used in estimating acreage prior to the issuance of the present permit, was a general model that did not attempt to provide a detailed depiction of the energy flows in tidal marshes on the Delaware. Nevertheless, PSE&G contends that data collected from the restored marshes show detrital production on a per acre basis at a rate roughly equivalent to that used in the aggregate food chain modeling to support the acreage calculation for the July 20, 1994 NJPDES permit.

Fifth, more than 700 acres of impoundments are being made available for river herring spawning as a result of the installation of fish ladders. The production of juvenile herring varies in such ponds and lakes. PSE&G anticipates that the ponds will produce between 2,564 and 338,350 kg of forage fish which would be consumed by predators such as striped bass and weakfish. In addition, approximately 200,000 adult river herring should return to the Estuary annually where they will be available for fishery harvest or for spawning.

Lastly, the marshes are an important food and habitat support to other wildlife, particularly birds. Both the Ramsar Convention and The Nature Conservancy have recognized the significant importance of the marshes of Delaware Bay to migratory birds-shore birds, ducks and geese, raptors and songbirds, as well as colonial wading birds.

Results of the PSE&G's Bioenergetics Analysis for the Salt Hay Farms

The bioenergetics analysis was done independently for 1997 and 1998 and, in each year, a high and low estimate was provided based on differing estimates of the catchability of the fish. The low amount for the RIS occurred in 1998 when production of 50,835 kg live weight was calculated; the high figure of 404,055 occurred in 1997. The RIS category includes bay anchovy, spot, striped bass, weakfish, white perch, and Atlantic croaker. Blue crab were particularly abundant in 1998 with a high estimate at 273,168 kg as against a low figure in 1997 of 28,128 kg. The total for all species combined varies from a low of 196,477 kg in 1998 to a high of 945,996 kg in 1997.

Proposed Permit Requirement Regarding Production Measurement of the Wetland Restoration Sites

PSE&G was not required to estimate fish production at its wetland restoration sites as part of the July 20, 1994 permit. The Department recognized at that time the many factors, variables and limitations to measuring productivity of the wetland restoration sites and of the fish ladders. On page 45 of the Response to Comments document in the July 20, 1994 NJPDES permit, the Department states:

> The Permittee would not be required to demonstrate how many fish of each species have been generated from the restored wetlands. Such a demonstration would not be practicable given the many environmental variables that influence fish populations in the Delaware Estuary. Accordingly, the restoration program does not include fish abundance indices or goals. Rather, the Permittee is required to demonstrate that it has restored the requisite acreage of wetlands from which, based on the best scientific evidence available, it is logical and appropriate to conclude that there will be increased productivity of fish in the Estuary.

The Department required the best technology available pursuant to Section 316(b) and then separately, based on the permittee's proposal, incorporated the wetlands restoration conditions and fish ladder conditions. Thus, the permittee's compliance with Section 316(b) does not depend on a certain level of productivity. Moreover, the Department finds that the detrital production monitoring indicates that the continually evolving wetland restoration sites show detrital production at a comparable level to the reference sites. Nonetheless, a more definitive quantification of fish production is important in a general sense and because the permittee has made and continues to make general statements about the level of fish productivity from wetlands restoration as a factor in fish population trends. Therefore, the Department is proposing the following:

(1) As part of any renewal application, the permittee shall include estimates of fish production from all PSE&G wetland restoration sites as well as the fish ladders. The permittee shall utilize appropriate methods, which may include bioenergetics. The Department acknowledges that these "estimates" are subject to many environmental variables. Losses at the intake structure and measures of productivity shall be expressed in common units of biomass.

4. Minimization of Impacts through Continued and Proposed Special Conditions

The Department has determined that the Station's existing once-through cooling system in conjunction with an intake flow limitation, an enhanced fish return system and the study and potential implementation of a multi-sensory hybrid system constitutes **best technology available**. The Department is also continuing to require further development of the Special Conditions which include wetlands restoration and enhancement; continued monitoring of the fish ladders; and improved biological monitoring. Lastly, the Department is requiring further study and analysis relating to entrainment and impingement and productivity on the marsh. These Special Conditions are required to minimize environmental impacts related to the Station's cooling water system pursuant to Section 316(b) of the Clean Water Act.

XI. COMPARISON OF THE SECTION 316 SPECIAL CONDITIONS INCLUDED IN THE JULY 20, 1994 PERMIT AS COMPARED TO THE SECTION 316 SPECIAL CONDITIONS PROPOSED IN THIS RENEWAL PERMIT

This table provides a brief overview of the Section 316 Special Conditions included in the July 20, 1994 NJPDES Permit as compared to the Section 316 Special Conditions proposed in the renewal permit. Please refer to Part IV for additional detail regarding proposed conditions.

Section 316 Special Condition in the July 20, 1994 Permit	Special Condition Retained in Proposed Renewal Permit?	Reference in Part IV of Proposed Renewal Permit
Intake Flow Limit and Dye Tracer Evaluation	Yes	G.1.
Intake Screen Modifications	Modified to require further study and enhancements particularly the fish return system.	G.2.
Wetlands Restoration and Enhancement	Modified to continue with wetlands restoration and enhancement efforts – requirements included for any "replacement acreage" deemed necessary.	G.3.d.
Installation of Fish Ladders	Modified to continue monitoring of adult and juvenile passage and stocking.	G.4.
Sound Deterrent Study	Modified to require further study of a multi-sensory hybrid system which shall include sound	G.5.a.
Biological Monitoring Program	Modified to require improvements to the biological monitoring program. Until such time as improvements	G.6.

	are proposed; program shall continue.	
Financial Assurance Requirements	No – No longer applicable	N/A
Force Majeure	No – No longer applicable	N/A
Submission of all Documents	Yes	G.10
Termination of Section 316(a) Variance/Penalties	Yes	G.11.
Information Required to be Submitted as part of a Section 316(a) Variance Request and Section 316(b) Determination	Retained for any Future NJPDES Renewal Application.	G.12.a.

This table provides a brief overview of any **new** Section 316 Special Conditions proposed in this renewal permit. Please refer to Part IV for additional detail regarding these proposed conditions.

Proposed Section 316 Special Condition in this Renewal Permit	**Item Reference in Part IV of Proposed Renewal Permit**
Designation of Estuary Enhancement Oversight Committee Members	G.3.
Entrainment and Impingement Abundance Monitoring shall continue until an Improved Biological Monitoring Program is Developed	G.7.a. and G.7.b.
Expansion of Current Analysis regarding Losses at the Station	G.8.a. and c.
Expansion of Current Analysis regarding Entrainment Sampling	G.8.b. and c
Study of the Hydrodynamics at the Intake	G.9.a. and c.
Study of Enhancements to Entrainment and Impingement Sampling	G.9.b. and c.
Estimates of Production of the Wetland Restoration Sites and Fish Ladders	G.12.b.

XII. CONTENTS OF THE ADMINISTRATIVE RECORD

The following items are used to establish the basis of the Draft Permit:

1. 33 U.S.C. 1251 et seq., Federal Water Pollution Control Act.
2. N.J.S.A. 58:10A-1 et seq., New Jersey Water Pollution Control Act.
3. 40 CFR Part 122, National Pollutant Discharge Elimination System.
4. N.J.A.C. 7:14A-1 et seq., New Jersey Pollutant Discharge Elimination System Regulations. [A]
5. N.J.A.C. 7:9B-1 et seq., New Jersey Surface Water Quality Standards. [A]
6. 40 CFR Part 131, Federal Water Quality Standards. [A]
7. "Field Sampling Procedures Manual", published by the NJDEP. [A]
8. "Discharge Monitoring Report (DMR) Instructional Manual", published by the NJDEP. [A]
9. "EPA Technical Support Document for Water Quality-based Toxics Control", EPA/505/2-90-001, March 1991. [A]
10. Delaware River Basin Commission Water Quality Regulations.
11. NJPDES/DSW Permit Application dated 3/4/99 (see below for more detail) as well as subsequent submittals.
12. NJPDES/DSW Permit NJ0005266, issued 7/20/94 and draft issued 6/24/93.
13. Review of Portions of New Jersey Pollutant Discharge Elimination System (NJPDES) Renewal Application for the Public Service Electric & Gas' (PSE&G) Salem Generating Station – Final Report. Prepared by ESSA Technologies, Ltd. dated June 14, 2000 (included as Attachment A).
14. Presentation on April 26, 2000 by representatives of the ESSA Review Team.
15. Site Tour of Salem Generating Station in April 1999 by NJDEP Representatives as well as the site tour with NJDEP and ESSA Representatives in December 1999.
16. Current Management Plans for Dennis, Commercial, Maurice River Township, Cohansey River, Alloways Creek and Delaware Wetland Restoration Sites as well as Deed of Conservation Restrictions for all sites.
17. Biological Monitoring Program – Annual Reports for Years 1996-1999
18. Information Distributed at Monitoring Advisory Committee Meetings and Management Plan Committee Meetings as well as associated site tours.
19. Effluent Characterization Study Reports from PSE&G dated March 18, 1996 (Phase 1), February 26, 1999 (Phase 2) and March 17, 1999 (Phase 2).
20. Correspondence dated June 19, 1998 addressed to Edward Keating of PSE&G from Debra Hammond of NJDEP reducing the number of parameters for Phase 2 of the effluent characterization study based on the results of Phase 1.
21. Correspondence dated July 14, 1999 addressed to E. Keating of PSE&G from D. Hammond requiring a chronic toxicity characterization study (included as Attachment 1).
22. Correspondence dated November 24, 1999 addressed to all MPAC and MAC members requesting comments on specific portions of the March 4, 1999 PSE&G renewal application.

23. Correspondence dated December 14, 1999 from Belva Prycl (MPAC member) in response to the November 24, 1999 correspondence.
24. Correspondence dated December 22, 1999 addressed to D. Hammond from Roy Miller of DNREC which includes as an attachment a report prepared by Dr. Phil Goodyear (a consultant hired by DNREC). This report includes comments on Appendix F of the PSE&G application.
25. Correspondence dated February 18, 2000 addressed to Dennis Hart of NJDEP from R. Edwin Selover of PSE&G which includes a rebuttal to Dr. Goodyear's review.
26. Correspondence dated March 30, 2000 addressed to D. Hammond from R. Miller which includes a report prepared by Dr. Desmond Kahn of DNREC regarding review of the striped bass impingement and entrainment calculations.
27. Correspondence dated May 17, 2000 addressed to S. Rosenwinkel of NJDEP from Maureen Vaskis of PSE&G in response to the April 26, 2000 meeting.
28. Correspondence dated June 9, 2000 addressed to M. Vaskis granting a one month extension on the chronic toxicity characterization study as required by the July 14, 1999 correspondence.
29. Correspondence dated June 30, 2000 from Eric Shrading of US Fish and Wildlife Service containing comments on the March 4, 1999 application.
30. Correspondence dated April 24, 2000 addressed to W. Boehle of NJDEP from Gabor Salamon of PSEG requesting transfer of NJPDES permits from "PSE&G" to "PSEG".

[A] Denotes items which may be found in the NJPDES/DSW Administrative Record Library located in the NJDEP Central File Room, 401 East State Street, Trenton, NJ.

NJDEP Project Team

Susan Rosenwinkel, Principal Environmental Engineer, Bureau of Point Source Permitting – Region 2
Bruce Freeman, Research Scientist, Division of Fish and Wildlife
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Kevin Broderick, Supervising Environmental Specialist, Land Use Regulation Program
Terri Cutrera, Deputy Attorney General, Division of Law and Public Safety

Components of the March 4, 1999 NJPDES/DSW Permit Application

Appendix A - Procedural History
Appendix B - Description of Station
Appendix C - Ecosystem of the Delaware System
Attachment C-1Weakfish
Attachment C-2 Striped Bass
Attachment C-3 White Perch
Attachment C-4 Spot
Attachment C-5 Atlantic Croaker
Attachment C-6 American Shad
Attachment C-7 Alewife
Attachment C-8 Blueback Herring
Attachment C-9 Bay Anchovy
Attachment C-10 *Gammarus Tigrinus* Group
Attachment C-11 *Neomysis* Americana
Attachment C-12 Blue Crab
Attachment C-13 Mummichog
Attachment C-14 Atlantic Silverside
Attachment C-15 General Water Quality and Trend Analysis of the Delaware Estuary
Appendix D - Legal Appendix
Appendix E - 316(a) Demonstration
Attachment E-1 - Assessment of PSE&G River Monitoring and Modeling Programs

Exhibit G-2-7 Residual Pesticide Monitoring at PSE&G's Salt Hay Farm Wetland Restoration Sites
Exhibit G-2-8 Assessment of Offsite Flooding Effects Associates with Wetland Restoration Activities
Exhibit G-2-9 Groundwater Response to Wetland Restoration Activities
Addendum G-2-9-1 Field Investigation Procedures Followed by Woodward Clyde Consultants at Salt Hay Farm Sites
Exhibit G-2-10 Part 1 PSE&G's Spray and Burn Program for the Control of Phragmites
Exhibit G-2-10 Part II Toxicological Hazard and Risk Assessment of Glyphosate in Association with Marsh Restoration in the Delaware Estuary
Exhibit G-2-10 Part III Ecological Risk Assessment of the Use of Glyphosate for the PSE&G Wetland Restoration Program
Addendum G-2-10-III-1 Raw Data Table of Acute Toxicity Values
Exhibit G-2-11 Assessment of Potential Effects of PSE&G's Wetland Restoration and Upland Buffer Preservation Activities on Threatened and Endangered Species
Exhibit G-2-12 Potential Effects of Diked Salt Hay Farm Restoration on Horseshoe Crabs
Exhibit G-2-13 Enhancement Benefits to Waterfowl, Shorebirds and Other Wildlife of the Delaware Bayshore Region
Exhibit G-2-14 Human Access-Related Benefits Associates with the Wetlands Restoration
Exhibit G-2-17 Phragmites Migration Addendum G-2-17-1 Mapping/Difficulties

Attachment G-3 Evaluation of Faunal Response to Marsh Restoration: A Synthesis
Exhibit G-3-1 Evaluating Salt Marsh Restoration in Delaware Bay: Summary of Three Years of Fish Utilization Monitoring
Exhibit G-3-2 Evaluating Salt Marsh Restoration in Delaware Bay: Summary of Two Years of Food Habits Monitoring
Exhibit G-3-3 Food Habits of Large Predatory Fishes: Comparisons Between Restored and Reference Marshes
Exhibit G-3-4 Utilization of Reference and Restored Tidal Creeks by Young-Of-The-Year Atlantic Croaker, *Micropogonias Undulatus*, as Demonstrated by Mark-And-Recapture Techniques
Exhibit G-3-5 Utilization of Tidal Creeks by a Large Predatory Fish as Demonstrated by Ultrasonic Tracking: Comparison of a Restored and a Reference Marsh
Exhibit G-3-6 Response of Killifishes to Marsh Restoration in Delaware Bay
Exhibit G-3-7 Comparison of Distribution and Feeding Ecology of Young-Of-The-Year *Fundulus Heteroclitus* Between a Restored Salt Hay Farm and a Reference Marsh
Exhibit G-3-8 Relative Importance of Benthic Microalgae, Phytoplankton and the Detritus of Smooth Cordgrass (*Spartina*) and the Common Reed (Phragmites) to Brackish Marsh Food Webs
Exhibit G-3-9 Occurrence of Small Pelagic Fishes in Tidal Creeks at the Dennis Township Salt Hay Farm Restoration Site
Exhibit G-3-10 The Response of Blue Crabs, *Callinectes Sapidus*, to Salt-Marsh Restoration in Delaware Bay
Exhibit G-3-11 Spatial Variation in Delaware Bay (U.S.A.) Marsh Creek Fish Assemblages
Exhibit G-3-12 Fish Studies in the Delaware Bay and Adjacent Marshes Literature
Exhibit G-3-13 Preliminary Analysis of Effects of Reed Grass (*Phragmites Australis*) Invasion on Marsh Surface Macrofauna: Response to Fishes
Exhibit G-3-14 Stable Isotope and RNA-DNA Analysis of Juvenile Fishes From Open Water and Tidal Marsh Habitats of Delaware Bay
Exhibit G-3-17 Aspects of the Distribution and Life History for Selected Species in Delaware Bay
Exhibit G-3-18 Occurrence of *Neomysis Americana* in Tidal Creeks at Dennis Township Salt Hay Farm Wetland Restoration Sites

Attachment G-4 Bioenergetic Modeling of Restored and Reference Wetland Sites

Salem/ Hope Creek Environmental Audit – Post-Audit Information

Question #: GEN-9 **Category:** General

Statement of Question:
Please provide copies of the following documents associated with the response presented at the Environmental Audit to Pre-Audit Question # GEN-9:

- A Discharge Prevention and Response Program (January 29, 2008) (DPRP), Part I: Introduction/Certification
- B DPRP, Part II: Spill/Discharge Prevention Plan
- C DPRP, Part III: Spills/Discharge Response Plan
- D DPRP, Part IV: Environmentally Sensitive Areas Protection Plan
- E Stormwater Pollution Prevention Plan (January 29, 2008)
- F Pollution Minimization Plan for PCBs (January 2008)

Response:
The requested documents are being provided.

List Attachments Provided:

- A Discharge Prevention and Response Program (January 29, 2008) (DPRP), Part I: Introduction/Certification
- B DPRP, Part II: Spill/Discharge Prevention Plan
- C DPRP, Part III: Spills/Discharge Response Plan
- D DPRP, Part IV: Environmentally Sensitive Areas Protection Plan
- E Stormwater Pollution Prevention Plan (January 29, 2008)
- F Pollution Minimization Plan for PCBs (January 2008)

PSEG NUCLEAR LLC

DISCHARGE PREVENTION AND RESPONSE PROGRAM

- ❖ DISCHARGE PREVENTION, CONTAINMENT, AND COUNTERMEASURE PLAN
- ❖ DISCHARGE CLEANUP AND REMOVAL PLAN
- ❖ SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN
- ❖ HAZARDOUS WASTE CONTINGENCY PLAN
- ❖ FACILITY RESPONSE PLAN
- ❖ STORMWATER POLLUTION PREVENTION PLAN
- ❖ POLLUTION MINIMIZATION PLAN FOR POLYCHLORINATED BIPHENYLS
- ❖ CORE PLAN

VOLUME 1

DISCHARGE PREVENTION

AND

RESPONSE PROGRAM

FOR

PSEG NUCLEAR LLC

PREPARED BY:

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PART I

INTRODUCTION/CERTIFICATION

PART I: INTRODUCTION I-1

PART I: INTRODUCTION

SECTION 1: REGULATORY REVIEW
(40 CFR 112.7)

PSEG Nuclear LLC provides a comprehensive *Discharge Prevention and Response Program (DPRP)* for the Salem and Hope Creek Generating Stations. This Program incorporates the requirements of the New Jersey Department of Environmental Protection (NJDEP) *Discharge Prevention, Containment, and Countermeasure/Discharge Cleanup and Removal (DPCC/DCR) Plans,* the United States Environmental Protection Agency (USEPA) *Facility Response Plan (FRP), Spill Prevention, Control, and Countermeasure (SPCC) Plan,* and *Hazardous Waste Contingency Plan (HWCP),* and the National Oceanic and Atmospheric Administration (NOAA) *Natural Resource Damage Assessment (NRDA) Protocol.*

The *Discharge Prevention, Containment, and Countermeasure (DPCC) Plan* and *Discharge Cleanup and Removal (DCR) Plan*, hereafter referred to as the "DPCC/DCR Plan", was prepared by PSEG Nuclear LLC for the Salem and Hope Creek Generating Stations to satisfy the requirements as defined in New Jersey Administrative Code, Title 7, Chapter 1E (NJAC 7:1E-1 et seq.). The original issuance of the DPCC/DCR Plan was approved by the NJDEP on July 27, 1993; the 3-year cycle renewal of the DPCC/DCR Plan was last approved by the NJDEP on November 29, 2005. The spill/discharge prevention and response elements of the NJDEP DPCC/DCR Plan are presented in this DPRP in Part II, Spill/Discharge Prevention Plan, and Part III, Spill/Discharge Response Plan, respectively.

The *Facility Response Plan,* hereafter referred to as the "FRP", was originally prepared by PSEG Nuclear LLC for the Salem and Hope Creek Generating Stations to satisfy the requirements as defined in Code of Federal Regulations, Title 40, Parts 9 and 112 (40 CFR 9 and 112), Oil Pollution Prevention, Non-Transportation-Related Onshore Facilities, Final Rule published July 1, 1994. The spill/discharge response element of the USEPA FRP is presented in Part III, Spill/Discharge Response Plan, of this DPRP. The FRP was resubmitted January 31, 2003 pursuant to the revised 40 CFR 9 and 112 as of August 16, 2002. The FRP renewal is pending final approval by the USEPA.

The *Spill Prevention, Control, and Countermeasure (SPCC) Plan*, hereafter referred to as the "SPCC Plan", was prepared by PSEG Nuclear LLC for the Salem and Hope Creek Generating Stations to satisfy the requirements as defined in Code of Federal Regulations, Title 40, Part 112 (40 CFR 112), Oil Pollution Prevention, Non-Transportation-Related Onshore Facilities. The spill/discharge prevention and response elements of the USEPA SPCC Plan are presented in this DPRP in Part II, Spill/Discharge Prevention Plan, and Part III, Spill/Discharge Response Plan, respectively.

The *Natural Resource Damage Assessment Protocol,* hereafter referred to as the "NRDA Protocol", was prepared by ENTRIX, Inc. for member companies of the Delaware Bay and River Cooperative, Inc. (DBRC) to supplement the DBRC's *Oil Spill Response Plan.*

This *Discharge Prevention and Response Program*, hereafter referred to as the "DPRP", has the full approval and support of PSEG Nuclear LLC's management, which will commit the necessary resources required for implementation. The intent of this Program is to provide a working document meeting the requirements of the following regulations. (See the Acronyms and Definitions Tab for key regulatory definitions).

1.1 APPLICABLE FEDERAL STATUTES AND REGULATIONS

1.1.1 Water Pollution Prevention and Control (Clean Water Act - CWA)

(33 USC 1251 et seq.; 40 CFR 110, 112, and 112.3)

The Clean Water Act (CWA) established the legislative authority for the USEPA to adopt regulations concerning discharges of oil (40 CFR 110) and oil pollution prevention (40 CFR 112). Oil pollution prevention regulations establish procedures, methods, equipment, and other requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Magnuson Fishery Conservation and Management Act).

As required by 40 CFR 112.3, a Spill Prevention, Control, and Countermeasure (SPCC) Plan must be developed for certain facilities detailing the implementation of various aspects of spill prevention and control. This DPRP satisfies these requirements and serves as the SPCC Plan.

The CWA further provides the USEPA with authority to adopt regulations which designate hazardous substances (40 CFR 116) and notification requirements for reportable quantities (RQ) of spills of hazardous substances (40 CFR 117). Notification requirements for these hazardous substance spills are included in this document.

The United States Coast Guard (USCG) subsequently adopted regulations pursuant to the CWA concerning notification procedures for discharges of oil and hazardous substances and procedures for removal of discharged oil (33 CFR 153). Regulations applicable to marine oil transfer facilities are set forth in 33 CFR 154 and 156.

1.1.2 Clean Water Act (CWA) *(NRDA Protocol only)* *(Sections 311(f)(4) and 311(f)(5))*

The Clean Water Act (CWA) authorizes certain government agencies, acting as public trustees, to recover damages to natural resources resulting from an oil spill. Specifically, Section 311(f)(4) of the CWA provides that cleanup costs "shall include any costs or expenses incurred by [authorized government agencies] in the restoration or replacement of natural resources damaged or destroyed as a result [of such spills or releases]." The authorized government agencies "shall act on behalf of the public as trustee of the natural resources to recover the costs of replacing or restoring such resources." [CWA Section 311(f)(5)].

1.1.3 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) *(DPCC/DCR Plan and NRDA Protocol only)* *(Sections 107(a)(4)(C) and 107(f); 40 CFR 302)*

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) established the legislative authority for the USEPA to adopt regulations concerning reportable quantities (RQ) for releases of hazardous substances (40 CFR 302). These regulations describe notification requirements if a reportable spill of a hazardous substance occurs. "Hazardous wastes" are defined as "hazardous substances" under CERCLA. Notification requirements for reportable spills of hazardous substances are included in this document.

Section 107(a)(4)(C) of 1980 CERCLA extends the liability of businesses (potentially responsible parties) responsible for releases of hazardous substances to "damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such release." Section 107(f) requires authorized government agencies to "act on behalf of the public as trustee of such natural resources to recover for such damages," with recovered sums used to "restore, replace or acquire the equivalent of such natural resources." In addition, the Potentially Responsible Parties (PRPs) must reimburse the government agencies for the cost of determining these damages. Thus, any cooperation with the trustees, with the intent of reducing duplication of study efforts while conducting the injury assessment, could represent significant savings to the PRPs.

1.1.4 Emergency Planning and Community Right-to-Know Act (SARA Title III)

(DPCC/DCR Plan only)

(Sections 302 and 304; 40 CFR 355)

Section 302 of this Act requires the USEPA to publish a list of extremely hazardous substances (EHS) and threshold planning quantities. Section 304 establishes requirements for immediate reporting of certain releases of EHS. Regulations promulgated pursuant to these sections of the Act are set forth in 40 CFR 355. Specifically, if an RQ of an EHS is released and non-facility personnel could be exposed, Local Emergency Planning Committees (LEPC) and the State Emergency Response Commission (SERC) must be notified in addition to the National Response Center (NRC). Notification requirements for reportable spills of EHS are included in this document.

1.1.5 Resource Conservation and Recovery Act (RCRA) *(DPCC/DCR Plan only)*

(40 CFR 262.34 and 265 Subparts C and D)

The Resource Conservation and Recovery Act (RCRA) was enacted by Congress in 1976 to provide for the safe disposal of discarded materials and to regulate the management of hazardous waste. Hazardous materials or products are not regulated under RCRA. Subtitle C of RCRA addresses five major elements for the management of hazardous waste:

1. Classification of solid waste and hazardous waste;

2. Cradle-to-grave manifest system, recordkeeping and reporting requirements;

3. Standards to be followed by generators, transporters and owners or operators of treatment, storage, or disposal facilities;

4. Enforcement of the standards through a permitting program and civil penalty policies; and,

5. The authorization of state programs (such as NJDEP's) to administer the federal RCRA program.

USEPA requires that PSEG Nuclear LLC develop and implement a Contingency Plan and Emergency Procedures and comply with certain preparedness and prevention requirements (40 CFR 265 Subparts C and D) as a condition of authorization for accumulation of hazardous wastes (40 CFR 262.34) at PSEG Nuclear LLC for a period not exceeding 90 days. This accumulation period may be extended to 180 days provided that all prerequisites as a designated Small Quantity Generator remain in effect. Hazardous waste regulations promulgated pursuant to RCRA contain notification procedures in the case of an emergency situation. This DPRP includes the referenced RCRA Contingency Plan/Emergency Plan requirements.

1.1.6 Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Regulations

(42 USC 6901 et seq.; 29 CFR 1910.120)

Any employer whose employees are engaged in discharge emergency response must comply with the provisions of 29 CFR 1910.120. This regulation requires employers to prepare and implement a discharge emergency response plan that addresses pre-emergency planning, actions to be taken in the event of an emergency, and post-emergency actions. In addition, employees serving on an emergency response team must receive in-depth discharge emergency response training.

1.1.7 Oil Pollution Act of 1990 (OPA) *(FRP only)*
(33 USC 1321(j); Sections 311(j)(6) and 4202(a); 40 CFR 9 and 112)

The Oil Pollution Act of 1990 (OPA) was enacted to expand spill prevention and preparedness activities and to improve spill response capabilities. The principal Federal government agencies charged to "prevent discharges of oil and hazardous substances from...onshore facilities and offshore facilities and to contain such discharges...are the USCG and the United States Environmental Protection Agency (EPA)." Under a 1971 Memorandum of Understanding (MOU), the USCG maintains jurisdiction over Marine Transportation-Related Facilities (MTRs) and the USEPA for Non-Transportation-Related Facilities (NTRFs).
Section 4202(a) of the OPA amends the Clean Water Act (CWA) Section 311(j)(6) to require regulations that provide that owners or operators of facilities prepare and submit "a plan for responding, to the maximum extent practicable, to a worst case discharge, defined as the largest foreseeable discharge in adverse weather conditions, and to a substantial threat of such a discharge, of oil or hazardous substance."

Executive Order 12777 delegated separate authority to the USCG and the USEPA to develop regulations covering response plans for MTRs and NTRFs, respectively, and required that plans be submitted by February 18, 1993 for facilities that could reasonably be expected to cause "substantial harm" or "significant and substantial harm" to the environment by discharging into or on the navigable waters, adjoining shorelines, or the exclusive economic zone (EEZ).

1.1.8 United States Environmental Protection Agency OPA Regulations *(FRP only)*
(40 CFR 9 and 112)

The FRP was initially prepared and submitted in February 1993 based on the guidelines set forth in USCG Navigation and Vessel Inspection Circular (NVIC) 7-92 and subsequent changes. This DPRP addresses the full requirements outlined in the Final Rule of 40 CFR Parts 9 and 112, Oil Pollution Prevention for Non-Transportation-Related Onshore Facilities, which was promulgated on July 1, 1994 and subsequently modified.

1.1.9 Superfund Amendments and Reauthorization Act (SARA) *(NRDA Protocol only) (15 CFR 990)*

CERCLA (also known as the Superfund Act) required the promulgation of regulations for NRDAs. In 1981, President Reagan delegated the responsibility to develop these regulations to the U.S. Department of the Interior (DOI). Final NRDA regulations conforming to the Superfund Amendments and Reauthorization Act (SARA) were approved in early 1988.

1.1.10 Proposed NOAA NRDA Compensation Formulas (1994) *(NRDA Protocol only)*

In January 1994, the proposed National Oceanic and Atmospheric Administration (NOAA) Natural Resource Damage Assessment (NRDA) regulations were published in the Federal Register. These proposed regulations follow the same general procedures for conducting NRDAs as outlined in the Oil Pollution Act of 1990 (OPA). In addition, the proposed NOAA regulations promote the use of damage determinations based on compensation formulas. The compensation formulas are recommended for use in estimating damages (in dollars) for spills ranging from 10 to 50,000 gallons, and where the trustees determine that there has not been "a significant loss in passive use values." It should be noted that the proposed rule is optional, and trustees have the flexibility to use other approaches for damage assessments.

1.2 APPLICABLE NEW JERSEY STATUTES AND REGULATIONS

1.2.1 Spill Compensation and Control Act

(NJSA 58:10-23.11 et seq.; NJAC 7:1E et seq.)

The Spill Compensation and Control Act (Spill Act) authorized the NJDEP to adopt regulations implementing spill prevention and control guidelines, procedures, and requirements. These regulations, set forth in NJAC 7:1E-1 et seq., are applicable to major facilities that handle petroleum and other hazardous substances. These regulations require that such facilities prepare a DPCC Plan and a DCR Plan, and allow integration of DCR Plans with DPCC Plans.

The regulations also establish inspection, design, upgrade, mapping, planning, recordkeeping, training, notification and reporting requirements. This DPRP, which serves as the DPCC/DCR Plan and as the SPCC Plan, is maintained by Chemical, Radwaste and Environmental Supervisors at PSEG Nuclear LLC.

1.2.2 New Jersey Solid Waste Management Act (NJSWMA)

(NJSA 13:1E-1 et seq.; NJAC 7:26A)

The New Jersey Solid Waste Management Act (NJSWMA) establishes a statutory framework for the management and coordination of New Jersey's Hazardous Waste Management Program. The Act authorizes the NJDEP to promulgate and administer regulations governing the identification and management of hazardous waste. New Jersey has been authorized to develop and implement its own hazardous waste management program by the USEPA pursuant to RCRA under NJAC 7:26A.

The Spill/Discharge Prevention Plan described in Part II includes the Hazardous Waste Contingency Plan for Salem and Hope Creek Generating Stations as defined in 40 CFR 265 Subparts C and D.

1.2.3 New Jersey Underground Storage Tank Law and Regulations

(NJSA 58:10A-21 et seq.; NJAC 7:14B)

The New Jersey Underground Storage Tank (UST) Law (NJSA 58:10A-21 et seq.) and Regulations (NJAC 7:14B) are applicable to non-residential storage tanks with capacities in excess of 1,100 gallons. These regulations establish requirements for construction, testing, inspection, containment, monitoring, registration, and decommissioning of USTs.

SECTION 2: SITE-SPECIFIC INFORMATION

(NJAC 7:1E-1.9(a), 1.9(b), and 1.9(c); 40 CFR 112.3(a) and 112.3(e); 40 CFR 112, Appendix F, Sections 1.2.6, 1.2.7 and 1.2.8)

In response to the NJDEP rules (NJAC 7:1E et seq.) for "Discharges of Petroleum and Other Hazardous Substances" and the USEPA rules (40 CFR Parts 9 and 112) for "Oil Pollution Prevention, Non-Transportation-Related Facilities (NTRFs)", PSEG Nuclear LLC, located in Lower Alloways Creek Township (LACT), New Jersey, supplies the following information to address the development of this DPRP for the facility. This document addresses Salem Generating Station, Hope Creek Generating Station, the adjacent land, and the uncommitted land adjacent to the facilities, and is maintained by Chemical, Radwaste and Environmental Supervisors.

PSEG Nuclear LLC is located on the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey. Known geographically as Artificial Island, the site is actually a peninsula connected to the mainland of New Jersey by a strip of marshland. This marshland was formed by hydraulic fill from dredging operations on the Delaware River by the U.S. Army Corps of Engineers (USACOE). The site is located 18 miles south of Wilmington, Delaware, 30 miles southwest of Philadelphia, Pennsylvania, and 7.5 miles southwest of Salem, New Jersey.

Salem and Hope Creek Generating Stations produce electrical power for the citizens of New Jersey and neighboring states. Both are classified as steam electric nuclear power plants which use nuclear fuel to generate electrical energy. Salem Generating Station consists of two pressurized water reactors (Units 1 and 2) with a net electrical capacity of approximately 1,100 megawatts per unit and one 36-megawatt gas combustion turbine generator (Unit 3). Hope Creek Generating Station consists of one boiling water reactor with a net electrical capacity of approximately 1,067 megawatts. The Standard Industrial Classification (SIC) Code for the facility is 4911; the North American Industrial Classification System (NAICS) Code for the facility is 221113.

Construction of these facilities was initiated in 1967 with substantial construction occurring from 1972 - 1986 as the Hope Creek Unit became operational. The dates of initial operation for the three nuclear units at the facility's Salem and Hope Creek Generating Stations are as follows:

- Salem Unit 1 - June 30, 1977;
- Salem Unit 2 - October 13, 1981; and
- Hope Creek Unit 1 - December 20, 1986.

The date the facility first started storing oil was 1972.

Detailed engineering plans and other facility documents are available onsite. Authorized regulatory agency personnel may gain access to the facility and these documents by contacting Salem Radwaste and Environmental Supervisor at (856) 339-2686 or Hope Creek Radwaste and Environmental Supervisor at (856) 339-5411 during normal working hours. Five working days' notice should be given prior to actually visiting the site to allow PSEG Nuclear LLC the time to schedule escort personnel. This five-day request is not necessary during emergency conditions, when immediate access may be needed. However, Environmental Supervisors should always be contacted, whether visits/inspections are routine or emergency.

During off hours, the Operations Superintendent (OS) at Salem or Hope Creek Generating Station should be contacted. Telephone numbers of these personnel are listed under the Telephone Numbers Tab.

SECTION 3: CERTIFICATIONS *(DPCC/DCR Plan and SPCC Plan)*

(NJAC 7:1E-4.4, 4.9(e) and 4.11; 40 CFR 112.3(d), 112.5(b) and 112.5(c))

PSEG Nuclear LLC includes the following certifications in order to comply with NJAC 7:1E-4.11. Two SPCC certifications pursuant to 40 CFR 112.3(d) and 112.5(b) are also included. In addition, PSEG Nuclear LLC can demonstrate financial responsibility (NJAC 7:1E-4.4) for taking corrective actions (See Volume 2, Appendix A) resulting from the discharge of a hazardous substance and for the removal of any abandoned structure owned or operated, as the case may be, for the owner or operator.

3.1 CORPORATE OFFICIALS

(NJAC 7:1E-4.9(e), 4.11(a), 4.11(b), 4.11(c) and 4.11(d))

I certify under penalty of law that the information provided in this document is, to the best of my knowledge, true, accurate and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fines or imprisonment or both, for submitting false, inaccurate or incomplete information.

Rc	1/23/08
Robert Braun	Date
Site Vice-President - Salem	
George P. Barnes	1/24/08
George Barnes	Date
Site Vice-President - Hope Creek	

3.2 ECOLOGIST AND ORNITHOLOGIST *(DPCC/DCR Plan only)* *(NJAC 7:1E-4.3(b)8iii, 4.9(e) and 4.11(f))*

I (we) certify that the Environmentally Sensitive Area Protection Plan (ESAPP) included in Part IV of this DPRP for Salem and Hope Creek Generating Stations is based on acceptable scientific methods, mapping information provided by various regulatory authorities, and the best information available, identifies those environmentally sensitive areas that could be affected by a discharge from this facility and the seasonal sensitivity of those areas, provides for protection from, and mitigation of, any potentially adverse impact on the identified areas, and for an environmental assessment in the event of a discharge as certified thereto.

The résumés of signatories are attached under the Résumés Tab.

Gary L. Bickle — Date: 1/21/08
Ecologist

Andrew J. Bernick, Ph.D. — Date: 1/17/08
Ornithologist

3.3 REGISTERED PROFESSIONAL ENGINEER CERTIFICATION *(DPCC and SPCC Plans)* *(NJAC 7:1E-4.9(e), 4.11(e), 40 CFR 112.3(d), 112.5(c) and 112.7)*

I hereby certify that I have, or my agent has, visited and examined the facility known as Salem and Hope Creek Generating Stations of PSEG Nuclear LLC and that I am familiar with the provisions of 40 CFR 112, "Oil Pollution Prevention". I certify that PSEG Nuclear LLC's DPRP satisfies the requirements of NJAC 7:1E-4.11(e) and 40 CFR 112 and has been prepared and amended in accordance with good engineering practices, including consideration of applicable industry standards. I further certify that procedures for required inspections and testing have been established, and that the Plan is adequate for the facility.

Karen E. Franz, P.E.

Printed Name of Registered Professional Engineer

Karen Franz

Signature of Registered Professional Engineer

Date Signed January 17, 2008 Registration No. G42727

3.4 SPCC PLAN REVIEW CERTIFICATION *(SPCC Plan only)* *(40 CFR 112.5(b))*

I hereby certify that I have completed a review and evaluation of the SPCC Plan for Salem and Hope Creek Generating Stations of PSEG Nuclear LLC this date in accordance with the revised 40 CFR 112 regulations effective August 11, 2004, and although no technical amendments were necessary, administrative changes have been made.

Greg Suey — 1/23/08

Gregory Suey — Date

Salem Chemistry, Radwaste, and Environmental Manager

R. Labott — 1/24/08

Richard Labott — Date

Hope Creek Chemistry, Radwaste, and Environmental Manager

SECTION 4: AMENDMENTS TO DPRP

4.1 DPCC/DCR PLAN (Part II and Part III)

(NJAC 7:1E-4.8, 4.9(a), 4.9(b), 4.9(c), 4.9(d) and 4.9(e))

Written notice shall be provided to the NJDEP Bureau of Discharge Prevention at least 60 days prior to the commencement of any new construction or installation, substantial modification or replacement of an aboveground storage tank or storage space, any appurtenant structures, or leak detection or other monitoring, prevention, or safety system or device which could materially affect the potential for discharges.

PSEG Nuclear LLC may, from time to time, modify, alter, replace, or enhance procedures, methods, operations, etc., described in this document. No notification to Federal, State, or local authorities will be made if such changes do not increase the risk of a spill/discharge or inhibit compliance with the Discharge Prevention regulations.

Within 30 days of completion of any change in facility design, construction, operation or maintenance which will materially affect the potential for discharges or the substance of the existing plan, such change will be reported to the NJDEP. This DPRP will be updated to reflect the change prior to resubmittal for approval. This DPRP will also be amended whenever required due to a regulatory or procedural change, emergency coordinator change, or significant change in the onsite storage location of hazardous substances or wastes which will materially affect the potential for discharges. Amendments to this document will be certified in accordance with NJAC 7:1E-4.11.

Changes to the following information will be reported to the NJDEP within 30 days, but will not be considered plan amendments subject to the certification and approval requirements of NJAC 7:1E-4.8:

1. Name and mailing address of the facility, if the change is not the result of a change of ownership;

2. Facility and personnel telephone numbers;

3. Name and business address of the owner's or operator's registered agent;

4. Employee names that are included in the DPCC or DCR Plans; and

5. New or revised financial responsibility documents.

At least once every three years, this DPRP will be reviewed and evaluated by the Chemical, Radwaste and Environmental Supervisor to assure continued compliance with DPCC/DCR regulations and that the document still reflects actual practices. A renewal notification will be sent to the NJDEP, at least 180 days before expiration, which will consist of the revised DPRP or a certification stating that the existing document on file with the NJDEP is current. The renewal will be accompanied by a summary of spills and discharges which have occurred since the document's last approval or renewal. Implementation of amendments shall occur promptly upon approval. The renewal will be certified in accordance with NJAC 7:1E-4.11.

4.2 SPCC PLAN (Part II)

(40 CFR 112.5(a), 112.5(b) and 112.5(c))

PSEG Nuclear LLC may, from time to time, modify, alter, replace, or enhance procedures, methods, operations, etc., described in this document. No notification to Federal, State, or local authorities will be made if such changes do not increase the risk of a spill/discharge or inhibit compliance with the Discharge Prevention regulations.

In accordance with 40 CFR 112.5(a), within six months of any change in facility design, construction, operation or maintenance which materially affects the potential for discharges of oil into or upon the navigable waters of the United States or adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Magnuson Fishery Conservation and Management Act), such change will be reported to the USEPA. This DPRP will be updated to reflect the change prior to resubmittal for approval. This DPRP will also be amended whenever required due to a regulatory or procedural change, emergency coordinator change, or significant change in the onsite storage location of oil which could materially affect the response to a worst case discharge. (See Volume 2, Appendix D, Regulatory Letters/Approvals, Document No. D123). Technical amendments to this document will be certified by a Professional Engineer in accordance with 40 CFR 112.3(d) and 40 CFR 112.5(c).

At least once every five years, this DPRP will be reviewed and evaluated by the Chemical, Radwaste and Environmental Supervisor to assure continued compliance with SPCC regulations and that the document still reflects actual practices. The review and evaluation will be documented via the SPCC Plan Review Certification (See Section 3.4, this Part) and will be retained with the DPRP. A renewal notification will be sent to the USEPA, at least 180 days before expiration, which will consist of a cover letter listing any significant changes to the Plan, or if no significant changes were made to the Plan, that the existing document on file with the USEPA is current. A current copy of the DPRP will not be submitted unless the USEPA specifically requests a copy. The renewal will be accompanied by a summary of spills and discharges which have occurred since the document's last approval or renewal. The renewal will be certified in accordance with 40 CFR 112 et seq.

4.3 HAZARDOUS WASTE CONTINGENCY PLAN (Part II)

(40 CFR 265.54)

The Hazardous Waste Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

1. Applicable regulations are revised;

2. The Plan fails in an emergency;

3. The facility changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

4. The list of emergency coordinators changes; or

5. The list of emergency equipment changes.

4.4 FACILITY RESPONSE PLAN (Part III)

(40 CFR 9, 112, 112.20(d)(1), 112.20(d)(2) and 1120.20(d)(3))

This DPRP will be reviewed whenever a significant change occurs at the facility. The DPRP will be revised and those revised portions resubmitted to the Regional Administrator of the United States Environmental Protection Agency for approval within 60 days of each facility change that could materially affect the response to a worst case discharge, including:

(i) A change in the facility's configuration that materially alters the information included in the response plan;

(ii) A change in the type of oil handled, stored, or transferred that materially alters the required response resources;

(iii) A material change in capabilities of the oil spill removal organization(s) that provide equipment and personnel to respond to discharges of oil;

(iv) A material change in the facility's spill prevention and response equipment or emergency response procedures; and

(v) Any other changes that materially affect the implementation of the response plan.

Except as provided above, amendments to personnel and telephone number lists included in the response plan and a change in the oil spill removal organization(s) that does not result in a material change in support capabilities do not require approval by the Regional Administrator. A copy of such changes will be provided to the Regional Administer as the revisions occur.

At least once every five years, this DPRP will be reviewed and evaluated by the Chemical, Radwaste and Environmental Supervisor to assure continued compliance with FRP regulations and that the document still reflects actual practices. A renewal notification, which includes the EPA-issued facility identification number (where one has been issued), will be sent to the USEPA by February 18 of the fifth year following the last submission and will consist of a cover letter listing any significant changes to the Plan along with affected pages, or if no significant changes were made to the Plan, that the existing document on file with the USEPA is current. A complete copy of the DPRP will not be submitted unless the USEPA specifically requests a copy.

4.5 STORMWATER POLLUTION PREVENTION PLAN (SPPP Tab)

(NJPDES Permits No. NJ0005622 (Salem) and No. NJ0025411 (Hope Creek))

The Stormwater Pollution Prevention Plan, hereafter referred to as the "SPPP", will be amended whenever construction activities are undertaken which will materially affect the potential for stormwater discharges. In addition, the SPPP will be reviewed and evaluated annually by the Chemical, Radwaste and Environmental Supervisor to assure continued compliance with NJPDES Permits No. NJ0005622 (Salem) and No. NJ0025411 (Hope Creek) and that the document still reflects actual practices. An annual facility inspection report will be sent to the NJDEP by September 30th which will consist of the inspection date and the name(s) and title(s) of the inspector(s) and will certify that the facility is in compliance with its SPPP and NJPDES Permits No. NJ0005622 (Salem) and No. NJ0025411 (Hope Creek). If there are any incidents of noncompliance, the report will identify the steps taken or being taken to remedy the noncompliance and to prevent recurrence.

4.6 DISCHARGE PREVENTION AND RESPONSE PROGRAM

This consolidated program, encompassing an integrated approach to spill/discharge prevention and response, will be reviewed annually to verify continual facility applicability. This review may coincide with statutory review and resubmittal as appropriate under the governing regulations. Any review which, in the judgment of the reviewer, warrants regulator notification or plan modification, will be acted upon in a timely manner as prescribed by the applicable regulation.

4.7 DISTRIBUTION

(NJAC 7:1E-4.6(g) and 4.9(a); 40 CFR 112.3(e); 40 CFR 265.53)

This DPRP is maintained by the Chemical, Radwaste and Environmental Supervisors at PSEG Nuclear LLC. A copy of this DPRP shall be maintained at this facility and submitted to the following:

COPY NO.	RECIPIENT
1	LACT Police Department, LACT Fire Department, and LACT Office of Emergency Management
2, 3	United States Environmental Protection Agency (FRP - technical amendments only; SPCC only if requested)
4	Delaware Bay and River Cooperative, Inc.
5, 6	New Jersey Department of Environmental Protection (Bureau of Discharge Prevention)
7	Salem County Department of Health
8	The Memorial Hospital of Salem County

SECTION 5: CROSS-REFERENCE TABLES

5.1 DPCC/DCR CROSS-REFERENCE TABLE

The following cross-reference table is to be used to find the applicable sections under the DPCC/DCR regulations (NJAC 7:1E et seq.) within this DPRP. Page numbers identified in the last column are used as the direct cross-reference between the NJAC 7:1E citation(s) and the applicable section(s) in this DPRP.

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
7:1E-1.8(a)1	2.2.1 Surface Waters/Stream Classifications	IV (IV-6)
7:1E-1.8(a)2	2.2.2 Sources of Water Supply	IV (IV-7)
7:1E-1.8(a)3	2.2.3 Bay Islands and Barrier Island Corridors	IV (IV-7)
7:1E-1.8(a)4	2.2.4 Beaches	IV (IV-7 to IV-8)
7:1E-1.8(a)5	2.2.5 Dunes	IV (IV-8)
7:1E-1.8(a)6	2.2.6 Wetlands/Wetland Transition Areas	IV (IV-8 to IV-9)
7:1E-1.8(a)7	2.2.7 Critical Wildlife Habitat	IV (IV-9 to IV-11)
7:1E-1.8(a)8	2.2.8 Prime Fishing Areas	IV (IV-11 to IV-12)
7:1E-1.8(a)9	2.2.9 Finfish Migratory Pathways	IV (IV-12)
7:1E-1.8(a)10	2.2.10 Water Areas Supporting Various Species of Submerged Aquatic Vegetation	IV (IV-12 to IV-13)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-1.8(a)11	2.2.11	Shellfish Harvesting Waters	IV (IV-13)
7:1E-1.8(a)12	2.2.12	Forest Areas Including Prime Forest Land and Unique Forestland	IV (IV-13 to IV-14)
7:1E-1.8(a)13	2.2.13	Habitat for Federal and State Endangered or Threatened Plant and Animal Species	IV (IV-14)
7:1E-1.8(a)14	2.2.14	Federal and State Wilderness Areas, Including Areas Included within the Natural Areas System, as designated in NJAC 7:5A-1.13, or the State Register of Natural Areas Pursuant to the Natural Areas System Act, NJSA 13:1B-15.12a et seq. and 15.4 et seq., and NJAC 7:5A-1.4, and Preserved Land Held By the New Jersey Natural Lands Trust Pursuant to the New Jersey Natural Lands Trust Act, NJSA 13:1B-15.119 et seq.	IV (IV-15 to IV-16)
7:1E-1.8(a)15	2.2.15	Wild and scenic river corridors, as defined in NJAC 7:7E-3.46(a)	IV (IV-16)
7:1E-1.9(a) and (c)	2.	Site-Specific Information	I (I-11 to I-12)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
			II
7:1E-2.2(a)	2.1	Facility Storage Areas	(II-7 to II-29)
	2.2	Matrix Analyses for Tank Testing	(II-29)
	2.3	Tank Truck Transfer Areas	(II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.5	Process Areas for Hazardous Substances	(II-52 to II-59)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Small Quantity Chemical Storage Areas	(Table II-1D)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
		Salem Generating Station Tank Spill Risk Matrix	(Table II-3A)
		Hope Creek Generating Station Tank Spill Risk Matrix	(Table II-3B)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-2.2(a)		Completed PSEG Nuclear LLC Tank Testing Matrix	(Table II-3C)
		Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule Under the Five Year Testing Interval	(Table II-3D)
		Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule Under API 653	(Table II-3D)
7:1E-2.2(b)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.3	Underground Storage Tank (UST)	(II-25)
7:1E-2.2(c)	2.1	Facility Storage Areas	II (II-7 to II-29)
7:1E-2.2(d) and (e)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.1	Tanks Outside the Power Blocks	(II-11 to II-16)
	2.1.2	Tanks Inside the Power Blocks	(II-16 to II-25)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
7:1E-2.2(f)	2.1	Facility Storage Areas	II (II-7 to II-29)
7:1E-2.2(g)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.4	Mobile or Portable Storage Tanks	(II-25 to II-26)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-2.2(h)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.5	Drum Storage Areas for Hazardous Substances	(II-26 to II-28)
		Common Storage and Process Facilities	(Table II-1C)
7:1E-2.3	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
7:1E-2.4	2.6	In-Facility Pipes for Hazardous Substances	II (II-60 to II-62)
		PSEG Nuclear LLC Completed Underground Piping Testing Matrix	(Table II-4A)
		PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule	(Table II-4B)
		Facility/Equipment Upgrade Plan	(Table II-5)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-2.5	2.5	Process Areas for Hazardous Substances	II (II-52 to II-59)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		DPRP Equipment Inventory Map	Tabs (Maps)
7:1E-2.6	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.5	Process Areas for Hazardous Substances	(II-52 to II-59)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
7:1E-2.7	2.7	Marine Transfer Area Lighting	II (II-62 to II-63)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-2.8	2.7	Marine Transfer Area Lighting	II (II-62 to II-63)
7:1E-2.9	2.8	Flood Hazard Areas	II (II-63)
7:1E-2.10	2.9	Visual Inspections and Monitoring	II (II-63 to II-66)
		PSEG Nuclear LLC Completed Underground Piping Testing Matrix	(Table II-4A)
		PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule	(Table II-4B)
		Facility/Equipment Upgrade Plan	(Table II-5)
7:1E-2.11	2.10	Housekeeping and Maintenance	II (II-66 to II-70)
7:1E-2.12	2.11	Training Program	II (II-70 to II-79)
7:1E-2.12(a)	2.11.4	Written Training Program	II (II-72)
7:1E-2.12(b)1	2.11.5	Written Job Descriptions	II (II-72 to II-73)
7:1E-2.12(b)2	2.11.6	Specified Time Periods	II (II-73)
7:1E-2.12(b)3	2.11.7	Procedures to Demonstrate Ability	II (II-73 to II-74)
7:1E-2.12(c)1	2.11.8	General Orientation/Initial Training	II (II-74)
7:1E-2.12(c)2	2.11.9	Classroom Training	II (II-74 to II-76)
	2.11.10	On-the-Job Training	II (II-77)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
7:1E-2.12(c)3	2.11.11 New SOP Training	II (II-77)
7:1E-2.12(c)4	2.11.12 Refresher Training	II (II-77)
7:1E-2.12(d)	2.11.13 Trainer Qualifications	II (II-78)
7:1E-2.12(e)	2.11.14 Documentation of Training	II (II-78)
7:1E-2.12(f)	2.11.15 Procedures for Outside Contractors	II (II-79)
7:1E-2.13	2.12 Description of Security	II (II-79 to II-80)
7:1E-2.14	2.13 Standard Operating Procedures (SOPs) SOP Catalog List	II (II-81 to II-82) Volume 2 (Appendix H)
7:1E-2.15	2.14 Description of Recordkeeping System	II (II-82 to II-83)
7:1E-2.16	2.2 Matrix Analyses for Tank Testing	II (II-29)
7:1E-3	N/A	---
7:1E-4.2(a)	1. General Information	II (II-1 to II-6)
7:1E-4.2(b)1	1.1 Facility Information 1.2 Facility Location	II (II-1 to II-2) (II-2)
7:1E-4.2(b)2	1.3 Owner/Operator 1.3.1 Co-Owners	II (II-3) (II-3)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.2(b)3	1.4	Facility Contact	II (II-3)
7:1E-4.2(b)4	1.5	Registered Agent	II (II-3 to II-4)
7:1E-4.2(b)5		N/A	---
7:1E-4.2(b)6	1.6	Site Plan	II (II-4 to II-5)
7:1E-4.2(b)7	1.6	Site Plan	II (II-4 to II-5)
		Site Plan Map	Tabs (Maps)
		DPRP Equipment Inventory Map	(Maps)
7:1E-4.2(b)8	1.7	Drainage and Land Use Map	II (II-5 to II-6)
		Drainage and Land Use Map	Tabs (Maps)
7:1E-4.2(b)9	1.8	Topographical Maps	II (II-6)
	2.1	Study Area	IV (IV-5)
		Drainage and Land Use Map	Tabs (Maps)
7:1E-4.2(b)10		N/A	---

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.2(b)11	1.9	Spill/Discharge History	II (II-6)
	1.1	Reportable Discharges	III (III-2)
		Summary of Spill/Discharge Reports	Volume 2 (Appendix C)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.2(c)1, (c)2, and (c)3	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.1	Tanks Outside the Power Blocks	(II-11 to II-16)
	2.1.2	Tanks Inside the Power Blocks	(II-16 to II-25)
	2.1.3	Underground Storage Tank (UST)	(II-25)
	2.1.4	Mobile or Portable Storage Tanks	(II-25 to II-26)
	2.1.5	Drum Storage Areas for Hazardous Substances	(II-26 to II-28)
	2.1.6	Small Quantity Chemical Storage Areas	(II-28 to II-29)
	2.2	Matrix Analyses for Tank Testing	(II-29)
	2.3	Tank Truck Transfer Areas	(II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.5	Process Areas for Hazardous Substances	(II-52 to II-59)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Small Quantity Chemical Storage Areas	(Table II-1D)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.2(c)1, (c)2, and (c)3		Salem Generating Station Truck Loading/Unloading Areas	II (Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
		Salem Generating Station Tank Spill Risk Matrix	(Table II-3A)
		Hope Creek Generating Station Tank Spill Risk Matrix	(Table II-3B)
		Completed PSEG Nuclear LLC Tank Testing Matrix	(Table II-3C)
		Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule Under the Five Year Testing Interval	(Table II-3D)
		Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule Under API 653	(Table II-3D)
7:1E-4.2(c)4	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.2(c)5	2.6	In-Facility Pipes for Hazardous Substances	II (II-60 to II-62)
		PSEG Nuclear LLC Completed Underground Piping Testing Matrix	(Table II-4A)
		PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule	(Table II-4B)
		Facility/Equipment Upgrade Plan	(Table II-5)
7:1E-4.2(c)6	2.5	Process Areas for Hazardous Substances	II (II-52 to II-59)
7:1E-4.2(c)7	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
7:1E-4.2(c)8	2.7	Marine Transfer Area Lighting	II (II-62 to II-63)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.2(c)9	2.8	Flood Hazard Areas	II (II-63)
7:1E-4.2(c)10	2.9	Visual Inspections and Monitoring	II (II-63 to II-66)
		PSEG Nuclear LLC Completed Underground Piping Testing Matrix	(Table II-4A)
		PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule	(Table II-4B)
		Facility/Equipment Upgrade Plan	(Table II-5)
7:1E-4.2(c)11	2.10	Housekeeping and Maintenance	II (II-66 to II-70)
7:1E-4.2(c)12	2.11	Training Program	II (II-70 to II-79)
7:1E-4.2(c)13	2.12	Description of Security	II (II-79 to II-80)
7:1E-4.2(c)14	2.13	Standard Operating Procedures (SOPs)	II (II-81 to II-82)
		SOP Catalog List	Volume 2 (Appendix H)
7:1E-4.2(c)15	2.14	Description of Recordkeeping System	II (II-82 to II-83)

NJAC 7:1E CITATION		DPCC/DCR APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
7:1E-4.2(d)	3.	Schedule for Upgrades	II (II-88)
		PSEG Nuclear LLC Completed Underground Piping Testing Matrix	(Table II-4A)
		PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule	(Table II-4B)
		Facility/Equipment Upgrade Plan	(Table II-5)
7:1E-4.3(a)		Response Coordinator	----
7:1E-4.3(b)1	2.1	Qualified Facility Personnel	III (III-7)
	2.3	Discharge Response Coordinator	(III-8 to III-10)
	2.3.2	Response Authority	(III-10)
		Telephone Numbers	Tabs (Telephone Numbers)
7:1E-4.3(b)2	2.3	Discharge Response Coordinator	III (III-8 to III-10)
	10.	Figures	(Figure III-1)
7:1E-4.3(b)3	4.	Discharge Response Procedures	III (III-14 to III-22)
	5.	Notification to Authorities	(III-23 to III-29)
	10.	Figures	(Figure III-2)
7:1E-4.3(b)4	4.4	Discharge Response Drills/Exercises	III (III-19 to III-21)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.3(b)5	3.	Discharge Response Equipment	III (III-10 to III-14)
		Discharge Response Equipment	Tabs (Discharge Response Equipment)
		DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
7:1E-4.3(b)6	2.11.2	Discharge/Emergency Response Training	II (II-71)
	2.	Discharge Response Personnel	III (III-7 to III-10)
	3.2	Discharge Response and Cleanup Contractors	(III-12 to III-13)
	3.3	Other Sources of Equipment	(III-13)
		Telephone Numbers	Tabs (Telephone Numbers)
		Discharge Response Equipment	(Discharge Response Equipment)
7:1E-4.3(b)7	4.2	Immediate Action Plan	III (III-15 to III-16)
	4.3	Summary Response Action Plan	(III-17 to III-19)
	6.1	Recovered Material	(III-30 to III-31)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.3(b)8i	1.7	Drainage and Land Use Map	II (II-5 to II-6)
	1.8	Topographical Maps	(II-6)
	Part IV:	Environmentally Sensitive Areas Protection Plan	IV (IV-1 to IV-48)
	2.2	Environmentally Sensitive Areas	(IV-6 to IV-16)
	2.4	Seasonal Sensitivity	(IV-17)
	3.	Discharge Impact, Assessment and Response	(IV-18 to IV-25)
	4.	Protection From, and Mitigation of, Potentially Adverse Impact	(IV-26 to IV-47)
		Drainage and Land Use Map	Tabs (Maps)
7:1E-4.3(b)8ii		Natural Resource Damage Assessment	Tabs (NRDA)
7:1E-4.3(b)8iii	3.2	Ecologist and Ornithologist	I (I-14)
7:1E-4.3(b)9	6.1	Recovered Material	III (III-30 to III-31)
7:1E-4.3(b)10		LEPC Letter of Agreement	Volume 2 (Appendix J)
7:1E-4.3(b)11		Financial Letter	Volume 2 (Appendix A)
7:1E-4.4	3.	Certifications	I (I-13 to I-16)
		Financial Letter	Volume 2 (Appendix A)
7:1E-4.6(g)	4.7	Distribution	I (I-22)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.8	4.1	DPCC/DCR Plan	I (I-17 to I-18)
7:1E-4.9(a)	4.1	DPCC/DCR Plan	I (I-17 to I-18)
	4.7	Distribution	(I-22)
7:1E-4.9(b)	4.1	DPCC/DCR Plan	I (I-17 to I-18)
7:1E-4.9(c)	4.1	DPCC/DCR Plan	I (I-17 to I-18)
7:1E-4.9(d)	4.1	DPCC/DCR Plan	I (I-17 to I-18)
7:1E-4.9(e)	3.	Certifications	I (I-13 to I-16)
	3.1	Corporate Officials	(I-13)
	3.2	Ecologist and Ornithologist	(I-14)
	3.3	Registered Professional Engineer Certification	(I-15)
	4.1	DPCC/DCR Plan	(I-17 to I-18)
7:1E-4.9(f)	4.1	DPCC/DCR Plan	I (I-17 to I-18)
7:1E-4.10	1.6	Site Plan	II (II-4 to II-5)
	1.7	Drainage and Land Use Map	(II-5 to II-6)
	1.8	Topographical Maps	(II-6)
		Site Plan	Tabs (Maps)
		Drainage and Land Use Map	(Maps)

NJAC 7:1E CITATION	DPCC/DCR APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
7:1E-4.11	3.	Certifications	I (I-13 to I-16)
7:1E-4.11(a), (b), (c) and (d)	3.1	Corporate Officials	I (I-13)
7:1E-4.11(e)	3.3	Registered Professional Engineer Certification	I (I-15)
7:1E-4.11(f)	3.2	Ecologist and Ornithologist	I (I-14)
7:1E-5.3(a) and (b)	5.	Notification to Authorities	III (III-23 to II-29)
7:1E-5.3(c)	5.1	Notification Procedure	III (III-23 to III-28)
7:1E-5.3(d)		N/A	---
7:1E-5.3(e) and (f)	1.1.1	Non-Reportable Spills/Leaks	III (III-2 to III-5)
7:1E-5.4		N/A	---
7:1E-5.5	5.4	Detection System Malfunctions	III (III-29)
7:1E-5.8(a), (c) and (e)	5.1	Notification Procedure	III (III-23 to III-28)
7:1E-5.8(d) and (f)	5.3	Follow-Up Reports	III (III-28)

5.2 SPCC CROSS-REFERENCE TABLE

(40 CFR 112.7)

The following cross-reference table is to be used to find the applicable sections under the SPCC regulations (40 CFR 112 et seq.) within this DPRP. Page numbers identified in the last column are used as the direct cross-reference between the 40 CFR 112 citation(s) and the applicable section(s) in this DPRP.

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
112 and 112.3	1.1.1 Water Pollution Prevention and Control (Clean Water Act - CWA)	I (I-3)
112.3(a)	2. Site-Specific Information	I (I-11 to I-12)
112.3(d)	3. Certifications 3.3 Registered Professional Engineer Certification	I (I-13 to I-16) (I-15)
112.3(e)	2. Site-Specific Information 4.7 Distribution	I (I-11 to I-12) (I-22)
112.3(f)	N/A	---
112.5(a)	4.2 SPCC Plan	I (I-18 to I-19)
112.5(b)	3. Certifications 3.4 SPCC Plan Review Certification 4.2 SPCC Plan	I (I-13 to I-16) (I-16) (I-18 to I-19)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.5(c)	3.	Certifications	I (I-13 to I-16)
	3.3	Registered Professional Engineer Certification	(I-15)
	4.2	SPCC Plan	(I-18 to I-19)
112.7	1.	Regulatory Review	I (I-1 to I-2)
	3.3	Registered Professional Engineer Certification	(I-15)
	5.2	SPCC Cross-Reference Table	(I-42)
112.7(a)3 and 112.7(a)3(i)	1.6	Site Plan	II (II-4 to II-5)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Small Quantity Chemical Storage Areas	(Table II-1D)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
		Site Plan Map	Tab (Maps)
		DPRP Equipment Map	(Maps)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.7(a)3(ii)	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
112.7(a)3(iii)	2.4	Secondary Containment/Diversion Systems	II (II-36 to II-51)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Small Quantity Chemical Storage Areas	(Table II-1D)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
112.7(a)3(iv)	Part III:	Discharge Response Plan	III (III-1 to III-47)
112.7(a)3(v)	6.1	Recovered Material	III (III-30 to III-31)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
112.7(a)3(vi)	Telephone Numbers Discharge Response Equipment	Tab (Telephone Numbers) (Discharge Response Equipment)
112.7(a)(4)	N/A	---
112.7(a)(5)	N/A	---

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.7(b)	1.6	Site Plan	II (II-4 to II-5)
	1.7	Drainage and Land Use Map	(II-5 to II-6)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Small Quantity Chemical Storage Areas	(Table II-1D)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
	7.2	Discharge Procedure/Scenarios	III (III-35 to III-37)
	8.3	Analysis of the Potential for an Oil Spill	(III-43 to III-44)
		Site Plan Map	Tabs (Maps)
		Drainage and Land Use Map	(Maps)
	2.3	Tank Truck Transfer Areas	112.7(c) II (II-30 to II-36)
112.7(c)	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
	2.5 Process Areas for Hazardous Substances	(II-52 to II-59)
	Salem Generating Station Storage and Process Facilities	(Table II-1A)
	Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
	Common Storage and Process Facilities	(Table II-1C)
	Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
	Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
112.7(d)	2.1 Facility Storage Areas	II (II-7 to II-29)
	2.2 Matrix Analyses for Tank Testing	(II-29)
	2.3 Tank Truck Transfer Areas	(II-30 to II-36)
	Salem Generating Station Tank Spill Risk Matrix	(Table II-3A)
	Hope Creek Generating Station Tank Spill Risk Matrix	(Table II-3B)
	PSEG Nuclear LLC Completed Tank Testing Matrix	(Table II-3C)
	PSEG Nuclear LLC Upcoming Tank Testing Matrix and Schedule	(Table II-3D)
	PSEG Nuclear LLC Completed Underground Piping Testing Matrix	(Table II-4A)
	PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule	(Table II-4B)
	Facility/Equipment Upgrade Plan	(Table II-5)
112.7(d)1	N/A	---
112.7(d)2	N/A	---

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.7(e)	2.9	Visual Inspections and Monitoring	II (II-63 to II-66)
	2.10.2	Inspections and Preventive Maintenance	(II-68 to II-70)
	2.13	Standard Operating Procedures (SOPs)	(II-81 to II-82)
	2.14	Description of Recordkeeping System	(II-82 to II-83)
		SOP Catalog List	Volume 2 (Appendix H)
112.7(f)	2.11	Training Program	II (II-70 to II-79)
	4.4	Discharge Response Drills/Exercises	III (III-19 to III-21)
112.7(g)	2.12	Description of Security	II (II-79 to II-80)
112.7(h)	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
	2.4	Secondary Containment/ Diversion Systems	(II-36 to II-51)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
		SOP Catalog List	Volume 2 (Appendix H)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
			II
112.8(b)(1)	2.3	Tank Truck Transfer Areas	(II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.4.1.1	Containment Structures for Tanks Outside the Power Blocks	(II-39 to II-45)
	2.4.2	Diversion Systems	(II-45 to II-51)
	2.10	Housekeeping and Maintenance	(II-66 to II-70)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.8(b)(2)	2.3	Tank Truck Transfer Areas	II (II-30 to II-36)
	2.4	Secondary Containment/ Diversion Systems	(II-36 to II-51)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
112.8(b)(3), (4) and (5)	1.7	Drainage and Land Use Map	II (II-5 to II-6)
	2.1	Facility Storage Areas	(II-7 to II-29)
	2.3	Tank Truck Transfer Areas	(II-30 to II-36)
	2.4	Secondary Containment/ Diversion Systems	(II-36 to II-51)
	2.4.2	Diversion Systems	(II-45 to II-51)
		Drainage and Land Use Map	Tabs (Maps)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
112.8(c)(1)	2.1 Facility Storage Areas	II (II-7 to II-29)
	2.4 Secondary Containment/ Diversion Systems	(II-36 to II-51)
	2.10 Housekeeping and Maintenance	(II-66 to II-70)
112.8(c)(2)	2.1 Facility Storage Areas	II (II-7 to II-29)
	2.3 Tank Truck Transfer Areas	(II-30 to II-36)
	2.4 Secondary Containment/ Diversion Systems	(II-36 to II-51)
112.8(c)(3)	2.3 Tank Truck Transfer Areas	II (II-30 to II-36)
	2.4 Secondary Containment/ Diversion Systems	(II-36 to II-51)
	2.4.1.1 Containment Structures for Tanks Outside the Power Blocks	(II-39 to II-45)
	2.14 Description of Recordkeeping System	(II-82 to II-83)
112.8(c)(4)	2.1 Facility Storage Areas	II (II-7 to II-29)
	2.1.3 Underground Storage Tank (UST)	(II-25)
112.8(c)(5)	N/A	---

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.8(c)(6)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.2	Matrix Analyses for Tank Testing	(II-29)
	2.9	Visual Inspections and Monitoring	(II-63 to II-66)
	2.10	Housekeeping and Maintenance	(II-66 to II-70)
	2.14	Description of Recordkeeping System	(II-82 to II-83)
		Salem Generating Station Tank Spill Risk Matrix	(Table II-3A)
		Hope Creek Generating Station Tank Spill Risk Matrix	(Table II-3B)
		PSEG Nuclear LLC Completed Tank Testing Matrix	(Table II-3C)
		PSEG Nuclear LLC Upcoming Tank Testing Matrix and Schedule	(Table II-3D)
112.8(c)(7)	2.1	Facility Storage Areas	II (II-7 to II-29)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.8(c)(8)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.1	Tanks Outside the Power Blocks	(II-11 to II-16)
	2.1.2	Tanks Inside the Power Blocks	(II-16 to II-25)
	2.4	Secondary Containment/ Diversion Systems	(II-36 to II-51)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
112.8(c)(9)		N/A	---
112.8(c)(10)	2.10	Housekeeping and Maintenance	II (II-66 to II-70)
112.8(c)(11)	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.4	Mobile or Portable Storage Tanks	(II-25 to II-26)
112.8(d)(1)	2.6	In-Facility Pipes for Hazardous Substances	II (II-60 to II-62)
112.8(d)(2)	2.6	In-Facility Pipes for Hazardous Substances	II (II-60 to II-62)
112.8(d)(3)	2.6	In-Facility Pipes for Hazardous Substances	II (II-60 to II-62)

40 CFR 112 CITATION	SPCC APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
112.8(d)(4)	2.9.5	Pipeline Inspections	II (II-66)
	2.10	Housekeeping and Maintenance	(II-66 to II-70)
112.8(d)(5)	2.6	In-Facility Pipes for Hazardous Substances	II (II-60 to II-62)
112.20(d)(1), (2) and (3)	4.4	Facility Response Plan	I (I-20 to I-21)

5.3 HAZARDOUS WASTE CONTINGENCY PLAN CROSS-REFERENCE TABLE

The following cross-reference table is to be used to find the applicable sections under the Hazardous Waste Contingency Plan regulations (40 CFR 265 Subparts C and D) within this DPRP. Page numbers identified in the last column are used as the direct cross-reference between the 40 CFR 265 Subparts C and D citation(s) and the applicable section(s) in this DPRP.

40 CFR 265 (CITATIONS)	HWCP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
265.31	2.10	Housekeeping and Maintenance	II (II-66 to II-70)
	2.13	Standard Operating Procedures (SOPs)	(II-81 to II-82)
		SOP Catalog List	Volume 2 (Appendix H)
265.32(a) and (b)	2.15.3	Implementation of the Contingency Plan	II (II-87)
	4.7	Evacuation Plans	III (III-22)
265.32(c)	3.	Discharge Response Equipment	III (III-10 to III-14)
		Discharge Response Equipment	Tabs (Discharge Response Equipment)
		DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
265.32(d)	3.1	Onsite Equipment	III (III-10 to III-11)

40 CFR 265 (CITATIONS)	HWCP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
265.33	2.10	Housekeeping and Maintenance	II (II-66 to II-70)
	2.13	Standard Operating Procedures (SOPs)	(II-81 to II-82)
	3.1	Onsite Equipment	III (III-10 to III-11)
	6.2	Discharge Response Equipment and Systems	(III-32)
		SOP Catalog List	Volume 2 (Appendix H)
265.34(a)	2.15.3	Implementation of the Contingency Plan	II (II-87)
	4.7	Evacuation Plans	III (III-22)
265.34(b)		N/A	---
265.35	2.15.1.2	180-Day Storage Areas	II (II-85 to II-86)
265.37(a)(1) and (2)	2.	Discharge Response Personnel	III (III-7 to III-10)
		Telephone Numbers	Tabs (Telephone Numbers)
		LEPC Letter of Agreement	Volume 2 (Appendix J)

40 CFR 265 (CITATIONS)	HWCP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
265.37(a)(3)	3.2	Discharge Response and Cleanup Contractors	III (III-12 to III-13)
	3.3	Other Sources of Equipment	(III-13 to III-14)
		Discharge Response Equipment	Tabs (Discharge Response Equipment)
		DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
		LEPC Letter of Agreement	(Appendix J)
265.37(a)(4)	4.5	Medical Support	III (III-21)
265.51(a)	2.15	Hazardous Waste Contingency Plan	II (II-84 to II-88)
265.51(b)	2.15.3	Implementation of the Contingency Plan	II (II-87)
265.52(a)	2.15.3	Implementation of the Contingency Plan	II (II-87)
	Part III:	Spill/Discharge Response Plan	III (III-1 to III-47)
265.52(b)	2.15.3	Implementation of the Contingency Plan	II (II-87)

40 CFR 265 (CITATIONS)	HWCP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
265.52(c)	3.2	Discharge Response and Cleanup Contractors	III (III-12 to III-13)
	3.3	Other Sources of Equipment	(III-13 to III-14)
	4.5	Medical Support	(III-21)
	4.6	Local Police	(III-21)
		Discharge Response Equipment	Tabs (Discharge Response Equipment)
		DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
		LEPC Letter of Agreement	(Appendix J)
265.52(d)	2.	Discharge Response Personnel	III (III-7 to III-10)
		Telephone Numbers	Tabs (Telephone Numbers)
265.52(e)	3.	Discharge Response Equipment	III (III-10 to III-14)
		Discharge Response Equipment	Tabs (Discharge Response Equipment)
		DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
265.52(f)	4.7	Evacuation Plans	III (III-22)
265.53	4.7	Distribution	I (I-22)

40 CFR 265 (CITATIONS)	HWCP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
265.54	4.3	Hazardous Waste Contingency Plan	I (I-19 to I-20)
	2.15.4	Hazardous Waste Contingency Plan Amendments	II (II-87 to II-88)
265.55	2.3	Discharge Response Coordinator	III (III-8 to III-10)
		Telephone Numbers	Tabs (Telephone Numbers)
265.56(a)	2.15.3	Implementation of the Contingency Plan	II (II-87)
	4.	Discharge Response Procedures	III (III-14 to III-22)
	5.	Notification to Authorities	(III-23 to III-29)
265.56(b) and (c)	4.2	Immediate Action Plan	III (III-15 to III-16)
265.56(d)	5.	Notification to Authorities	III (III-23 to III-29)
265.56(e)	4.3	Summary Response Action Plan	III (III-17 to III-19)
265.56(f)		N/A	---
265.56(g)	6.1	Recovered Material	III (III-30 to III-31)
265.56(h)(1)	2.15.1.1	Satellite Accumulation Areas	II (II-84)
265.56(h)(2)	3.1	Onsite Equipment	III (III-10 to III-11)
	6.2	Discharge Response Equipment and Systems	(III-32)

40 CFR 265 (CITATIONS)	HWCP APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
265.56(i)	5.1 Notification Procedure	III (III-23 to III-28)

5.4 FRP CROSS-REFERENCE TABLE

The following cross-reference table is to be used to find the applicable sections under the FRP regulations (40 CFR 9 and 112 et seq.) within this DPRP. Page numbers identified in the last column are used as the direct cross-reference between the 40 CFR 9 and 112 citation(s) and the applicable section(s) in this DPRP.

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.2.1	1.1	Facility Information	II (II-1 to II-2)
	1.2	Facility Location	(II-2)
Section 1.2.2	1.1	Facility Information	II (II-2)
Section 1.2.3	1.7	Drainage and Land Use Map	II (II-5 to II-6)
	8.2	Vulnerability Analysis	III (III-42)
Section 1.2.4	1.3	Owner/Operator	II (II-3)
Section 1.2.5	2.11.2	Discharge/Emergency Response Training	II (II-71)
	2.	Discharge Response Personnel	III (III-7 to III-10)
		Telephone Numbers	Tabs (Telephone Numbers)
Section 1.2.6	2.	Site-Specific Information	I (I-11 to I-12)
Section 1.2.7	2.	Site-Specific Information	I (I-11 to I-12)
Section 1.2.8	2.	Site-Specific Information	I (I-11 to I-12)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
Section 1.3(A)(1)	Telephone Numbers	Tabs (Telephone Numbers)
Section 1.3(A)(2)	10. Figures	III (Figure III-4)
	Spill Response Notification Form	Tabs (Spill Pull-Out)
Section 1.3(A)(3)	3. Discharge Response Equipment	III (III-10 to III-14)
	Discharge Response Equipment	Tabs (Discharge Response Equipment)
	DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
Section 1.3(A)(4)	3. Discharge Response Equipment	III (III-10 to III-14)
	4.4 Discharge Response Drills/Exercises	(III-19 to III-21)
	6.2 Discharge Response Equipment and Systems	(III-32)
	Discharge Response Equipment	Tabs (Discharge Response Equipment)
	DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.3(A)(5)	2.11.2	Discharge/Emergency Response Training	II (II-71)
	2.	Discharge Response Personnel	III (III-7 to III-10)
	3.2	Discharge Response and Cleanup Contractors	(III-12 to III-13)
	3.3	Other Sources of Equipment	(III-13 to III-14)
	7.3	Mitigation of a Small Discharge	(III-37 to III-38)
		Telephone Numbers	Tabs (Telephone Numbers)
		Discharge Response Equipment	(Discharge Response Equipment)
Section 1.3(A)(6)	1.6	Site Plan	II (II-4 to II-5)
	1.7	Drainage and Land Use Map	(II-5 to II-6)
	1.8	Topographical Maps	(II-6)
	4.7	Evacuation Plans	III (III-22)
		Site Plan Map	Tabs (Maps)
		Drainage and Land Use Map	(Maps)
		DPRP Equipment Inventory Map	(Maps)
		ESA Topographic Mapping Summary	Volume 2 (Appendix B)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.3(A)(7)	2.3	Discharge Response Coordinator	III (III-8 to III-10)
	4.2	Immediate Action Plan	(III-15 to III-16)
	4.3	Summary Response Action Plan	(III-17 to III-19)
Section 1.3(B)	2.	Discharge Response Personnel	III (III-7 to III-10)
	3.	Discharge Response Equipment	(III-10 to III-14)
	4.	Discharge Response Procedures	(III-14 to III-22)
	5.	Notification to Authorities	(III-23 to III-29)
	7.1.3	Worst Case Discharge (WCD)	(III-34)
	9.2	Worst Case Discharge	(III-45 to III-46)
		Telephone Numbers	Tabs (Telephone Numbers)
		Discharge Response Equipment	(Discharge Response Equipment)
			Volume 2 (Appendix I)
		DBRC Certification and Oil Spill Response Plan	

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.4.1	1.6	Site Plan	II (II-4 to II-5)
	2.3	Tank Truck Transfer Areas	(II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.5	Process Areas for Hazardous Substances	(II-52 to II-59)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
		Salem Generating Station Tank Spill Risk Matrix	(Table II-3A)
		Hope Creek Generating Station Tank Spill Risk Matrix	(Table II-3B)
		Completed PSEG Nuclear LLC Tank Testing Matrix	(Table II-3C)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.4.1		Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule Under the Five Year Testing Interval	II (Table II-3D)
		Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule Under API 653	(Table II-3D)
	8.1	Hazard Identification	III (III-41)
		Site Plan Map	Tabs (Maps)
		DPRP Equipment Inventory Map	(Maps)
Section 1.4.2	8.2	Vulnerability Analysis	III (III-42)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.4.3	1.9	Spill/Discharge History	II (II-6)
		Salem Generating Station Tank Spill Risk Matrix	(Table II-3A)
		Hope Creek Generating Station Tank Spill Risk Matrix	(Table II-3B)
	1.1	Reportable Discharges	III (III-2)
	7.2	Discharge Procedure/Scenarios	(III-35 to III-37)
	7.3	Mitigation of a Small Discharge	(III-37 to III-38)
	8.3	Analysis of the Potential for an Oil Spill	(III-43 to III-44)
	9.1	Small and Medium Discharges	(III-45)
	9.2	Worst Case Discharge	(III-45 to III-46)
		Summary of Spill/Discharge Reports	Volume 2 (Appendix C)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.4.4	1.9	Spill/Discharge History	II (II-6)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
	1.1	Reportable Discharges	III (III-2)
		Summary of Spill/Discharge Reports	Volume 2 (Appendix C)
Section 1.5.1	7.1.1	Small Discharge	III (III-33)
	7.1.2	Medium Discharge	(III-33)
	7.2	Discharge Procedure/Scenarios	(III-35 to III-37)
	7.3	Mitigation of a Small Discharge	(III-37 to III-38)
	9.1	Small and Medium Discharges	(III-45)
		DPRP Equipment Inventory Map	Tabs (Maps)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.5.2	7.1.3	Worst Case Discharge (WCD)	III (III-34)
	7.2	Discharge Procedure/Scenarios	(III-35 to III-37)
	9.2	Worst Case Discharge	(III-45 to III-46)
		DPRP Equipment Inventory Map	Tabs (Maps)
		Worst Case Discharge Calculations	Volume 2 (Appendix M)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.6.1	2.9	Visual Inspections and Monitoring	II (II-63 to II-66)
	2.10.2	Inspections and Preventive Maintenance	(II-68 to II-70)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
	4.1	Reporting of Discharges	III (III-14)
	4.2	Immediate Action Plan	(III-15 to III-16)
	4.3	Summary Response Action Plan	(III-17 to III-19)
	10.	Figures	(Figure III-4)
		Telephone Numbers	Tabs (Telephone Numbers)
		Spill Response Notification Form	(Spill Pull-Out)
		SOP Catalog List	Volume 2 (Appendix H)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.6.2	2.1	Facility Storage Areas	II (II-7 to II-29)
	2.1.1	Tanks Outside the Power Blocks	(II-11 to II-16)
	2.1.2	Tanks Inside the Power Blocks	(II-16 to II-25)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.5	Process Areas for Hazardous Substances	(II-52 to II-59)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.7.1	2.11.2	Discharge/Emergency Response Training	II (II-71)
	2.	Discharge Response Personnel	III (III-7 to III-10)
	3.	Discharge Response Equipment	(III-10 to III-13)
	4.2	Immediate Action Plan	(III-14 to III-15)
	4.3	Summary Response Action Plan	(III-15 to III-18)
	4.4	Discharge Response Drills/Exercises	(III-19 to III-21)
	7.2	Discharge Procedure/Scenarios	(III-35 to III-37)
	7.3	Mitigation of a Small Discharge	(III-37 to III-38)
	9.1	Small and Medium Discharges	(III-45)
	9.2	Worst Case Discharge	(III-45 to III-46)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
Section 1.7.2	3. Discharge Response Equipment	III (III-10 to III-13)
	6.1 Recovered Material	(III-30 to III-31)
	6.2 Discharge Response Equipment and Systems	(III-32)
	Discharge Response Equipment	Tabs (Discharge Response Equipment)
	DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
	Local Emergency Planning Committee (LEPC)	(Appendix J)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.7.3	1.6	Site Plan	II (II-4 to II-5)
	1.7	Drainage and Land Use Map	(II-5 to II-6)
	2.3	Tank Truck Transfer Areas	(II-30 to II-36)
	2.4	Secondary Containment/Diversion Systems	(II-36 to II-51)
	2.5	Process Areas for Hazardous Substances	(II-52 to II-59)
	2.9	Visual Inspections and Monitoring	(II-63 to II-66)
	2.10	Housekeeping and Maintenance	(II-66 to II-70)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
		Site Plan Map	Tabs (Maps)
		Drainage and Land Use Map	(Maps)
		DPRP Equipment Inventory Map	(Maps)
		Discharge Response Equipment	(Discharge Response Equipment)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.8.1	2.9	Visual Inspections and Monitoring	II (II-63 to II-66)
	2.10.2	Inspections and Preventive Maintenance	(II-68 to II-70)
	2.13	Standard Operating Procedures (SOPs)	(II-81 to II-82)
	2.14	Description of Recordkeeping System	(II-82 to II-83)
		SOP Catalog List	Volume 2 (Appendix H)
Section 1.8.1.1	2.9	Visual Inspections and Monitoring	II (II-63 to II-66)
	2.10.2	Inspections and Preventive Maintenance	(II-68 to II-70)
Section 1.8.1.2	3.1	Onsite Equipment	III (III-10 to III-11)
	6.2	Discharge Response Equipment and Systems	(III-32)
Section 1.8.1.3	2.4	Secondary Containment/Diversion Systems	II (II-36 to II-51)
	2.9	Visual Inspections and Monitoring	(II-63 to II-66)
	2.10	Housekeeping and Maintenance	(II-66 to II-70)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP	PART (PAGE NOS.)
Section 1.8.2	3. Discharge Response Equipment	III (III-11 to III-14)
	4.4 Discharge Response Drills/Exercises	(III-19 to III-21)
	Discharge Response Equipment	Tabs (Discharge Response Equipment)
	DBRC Certification and Oil Spill Response Plan	Volume 2 (Appendix I)
Section 1.8.3	2.11.2 Discharge/Emergency Response Training	II (II-71)
	2.11.14 Documentation of Training	(II-78)

APPENDIX F TO 40 CFR 112 CITATION	FRP APPLICABLE SECTION IN DPRP		PART (PAGE NOS.)
Section 1.9	1.6	Site Plan	II (II-4 to II-5)
	1.7	Drainage and Land Use Map	(II-5 to II-6)
		Salem Generating Station Storage and Process Facilities	(Table II-1A)
		Hope Creek Generating Station Storage and Process Facilities	(Table II-1B)
		Common Storage and Process Facilities	(Table II-1C)
		Salem Generating Station Truck Loading/Unloading Areas	(Table II-2A)
		Hope Creek Generating Station Truck Loading/Unloading Areas	(Table II-2B)
	4.7	Evacuation Plans	III (III-22)
		Site Plan Map	Tabs (Maps)
		Drainage and Land Use Map	(Maps)
		DPRP Equipment Inventory Map	(Maps)
Section 1.10	2.12	Description of Security	II (II-79 to II-80)

PART II

SPILL/DISCHARGE PREVENTION PLAN

PART II: SPILL/DISCHARGE PREVENTION PLAN

SECTION 1: GENERAL INFORMATION

(NJAC 7:1E-4.2(a))

Part 4.2 of Subchapter 4 of NJAC 7:1E specifically states, "*the owner or operator of a major facility shall prepare a DPCC Plan demonstrating compliance with the standards in NJAC 7:1E-2, and appoint a facility contact who shall be responsible for insuring compliance with the DPCC plan and this chapter. The facility contact shall be responsible for submission of all plans and reports required by this chapter to the Department.*"

The Sections in Part II address the DPCC Plan requirements for the Nuclear facilities located at PSEG Nuclear LLC. The facilities addressed in this document include Salem and Hope Creek Generating Stations.

1.1 FACILITY INFORMATION

(NJAC 7:1E-4.2(b)1; 40 CFR 112, Appendix F, Sections 1.2.1 and 1.2.2)

Name:	Salem Generating Station Hope Creek Generating Station
Mailing Address:	P.O. Box 236 Hancocks Bridge, NJ 08038
Location:	PSEG Nuclear LLC Alloway Creek Neck Road Lower Alloways Creek Township
Town:	Lower Alloways Creek Township
County:	Salem

Phone Number:	Salem Radwaste and Environmental Supervisor	
	(856) 339-2686	
	Hope Creek Radwaste and Environmental Supervisor	
	(856) 339-5411	
Telefacsimile Number:	Salem Radwaste and Environmental Supervisor	
	(856) 339-2619	
	Hope Creek Radwaste and Environmental Supervisor	
	(856) 339-3546	
Coordinate Centroid (NJ):	Salem Station	N 230, 436.38 / E 1, 754, 670.51
	Hope Creek Station	N 232, 184.40 / E 1, 754, 148.80
Geodetic Position:	Salem Station	N 39° 27' 46" / W 75° 32' 08"
	Hope Creek Station	N 39° 28' 03" / W 75° 32' 15"

Tax Lot and Block Information

This document includes the following properties (taken from Lower Alloways Creek Township current tax records):

Lots: 4, 4.01, 5, and 5.01; Block: 26

1.2 FACILITY LOCATION

(NJAC 7:1E-4.2(b)1; 40 CFR 112, Appendix F, Section 1.2.1)

PSEG Nuclear LLC is located in the southern region of the Delaware River Valley, and is situated on the east shore of Delaware Bay at approximately river mile 50[1].

1 River mile "0" is at the mouth of the Delaware Bay with miles increasing upstream.

1.3 OWNER/OPERATOR

(NJAC 7:1E-4.2(b)2; 40 CFR 112, Appendix F, Section 1.2.4)

The facility is co-owned and operated by PSEG Nuclear LLC located at:

80 Park Plaza
Newark, NJ 07101
(973) 430-7000

1.3.1 Co-Owners

The facility co-owners are:

Salem Generating Station		Hope Creek Generating Station	
PSEG Nuclear LLC	(57.41%)	PSEG Nuclear LLC	(100%)
Exelon (formerly PECO)	(42.59%)		

1.4 FACILITY CONTACT

(NJAC 7:1E-4.2(b)3)

Clifton Gibson
Salem Radwaste and Environmental Supervisor
(856) 339-2686

Erin West
Hope Creek Radwaste and Environmental Supervisor
(856) 339-5411

1.5 REGISTERED AGENT

(NJAC 7:1E-4.2(b)4)

The name and address of the operator/owner's registered agent is:

The Corporation Trust Company
1209 Orange Street
Wilmington, DE 19801

1.6 SITE PLAN

(NJAC 7:1E-4.2(b)7 and 4.10; 40 CFR 112.7(a)(3), 112.7(a)(3)(i) and 112.7(b); 40 CFR 112, Appendix F, Sections 1.3(A)(6), 1.4.1, 1.7.3 and 1.9)

The entire facility occupies approximately 740 acres of land including: Salem (220 acres), Hope Creek (153 acres), and uncommitted land (367 acres). A Locus Map (Maps Tab) shows the site location. A General Site Plan, reflecting the current facility arrangement, was prepared by comparing the existing site plan with current aerial photography and a site walkdown to determine and correct any observed discrepancies and meet the standards contained in NJAC 7:1E-4.10.

A DPRP Equipment Inventory Map is presented under the Maps Tab. This was developed showing the locations of bulk storage tanks, drum storage areas, process buildings, transformers, regularly used transfer areas and connecting pipes, and any other structures in or on which hazardous substances, including petroleum, are stored, handled, or used for the prevention of discharges of hazardous substances, and all facility fencing and gates. Each area of interest shown on the DPRP Equipment Inventory Map is identified by a location number. An itemized list of typical containers and equipment where hazardous substances are stored or utilized is presented in Tables II-1A and II-1B for Salem and Hope Creek Generating Stations, respectively. Table II-1C presents a similar list of items common to both Stations. The location numbers identifying the containers/equipment in Tables II-1A, 1B, and 1C correspond to the location numbers identifying those on the DPRP Equipment Inventory Map. Tables II-2A and 2B present truck loading/unloading areas for Salem and Hope Creek Generating Stations, respectively. For each location number, Tables II-1A, 1B, and 1C, and Tables II-2A and 2B provide grid coordinates which correspond to the DPRP Equipment Inventory Map. Thus, by cross-referencing Tables II-1A, 1B, and 1C, and Tables II-2A and 2B with the DPRP Equipment Inventory Map, the storage tanks, process areas, hazardous waste storage areas, containers, and tank truck loading/unloading areas can be located. Tables II-3A and II-3B present a list of aboveground storage tanks greater than 2,000 gallons located at Salem and Hope Creek

Generating Stations, respectively. Table II-3C presents a list of aboveground storage tanks requiring testing and the date testing was performed in accordance with New Jersey DPCC regulations found at NJAC 7:1E-2.2(a)4 and 2.16.

Areas where small amounts of chemicals are stored or handled and come under the purview of the Community Right-to-Know Act are identified by an independent numbering system and are shown on the DPRP Equipment Inventory Map and listed in Table II-1D.
To further assist in locating and identifying equipment and/or structures within the Power Plant Buildings, reference elevations are used. The main floor of the Power Plant Building at both Stations is identified approximately as elevation 100' (PSEG Ground Level Datum). The basement is identified approximately as elevation 54' for Hope Creek and as elevation 45' for Salem. The various sections and appendices of this document reference equipment locations (including response equipment and personnel protective equipment, where applicable), tanks and containers by elevation.

1.7 DRAINAGE AND LAND USE MAP

(NJAC 7:1E-4.2(b)8, 4.3(b)8i, and 4.10; 40 CFR 112.7(a)3, 112.8(b)(3), 112.8(b)(4) and 112.8(b)(5); 40 CFR 112, Appendix F, Sections 1.2.3, 1.7.3 and 1.9)

A Drainage and Land Use Map was prepared in accordance with the items specified in NJAC 7:1E-4.10. The drainage element and land use area details were completed by onsite inspection and verification of the existing Site Plan, survey, and data sources.

The primary data source used to map watercourses was the U.S. Fish and Wildlife Service, National Wetlands Inventory Map. The United States Geological Survey (USGS) 7.5 minute quadrangle maps served as a secondary data source.

The following agencies were contacted for listings and locations of all water supply wells greater than 100,000 gallons per day:

1. The State of New Jersey Department of Environmental Protection (NJDEP), Environmental Regulation Program;

2. The Delaware River Basin Commission (DRBC).

There are no wellhead protection areas delineated by the NJDEP within 1,000 feet of the facility boundary.

1.8 TOPOGRAPHICAL MAPS

(NJAC 7:1E-4.2(b)9, 4.3(b)8i, and 4.10; 40 CFR 112, Appendix F, Section 1.3(A)(6))

The Environmentally Sensitive area Topographic Mapping Summary included in Volume 2, Appendix B, prepared by Roy F. Weston, Inc., in accordance with the items specified in NJAC 7:1E-4.10, discusses the environmentally sensitive areas that could be affected by a discharge from PSEG Nuclear LLC. The maps are supplied in this DPRP.

1.9 SPILL/DISCHARGE HISTORY

(NJAC 7:1E-4.2(b)11; 40 CFR 112.7(a)4; 40 CFR 112, Appendix F, Sections 1.4.3 and 1.4.4)

All spill/discharge reports are readily available and are maintained by PSEG Nuclear LLC's Chemical, Radwaste and Environmental Department. In addition, a summary of any spill/discharge event at the Stations for the previous 60 months (2003-2007), as well as a description of any corrective actions taken, is included in Volume 2, Appendix C, Summary of Spill/Discharge Reports.

SECTION 2: TECHNICAL INFORMATION

2.1 FACILITY STORAGE AREAS

(NJAC 7:1E-2.2(a), 2.2(b), 2.2(c), 2.2(d), 2.2(e), 2.2(f), 2.2(g), 2.2(h), 4.2(c)1, 4.2(c)2, and 4.2(c)3; 40 CFR 112.7(d), 112.8(b)(3), 112.8(b)(4), 112.8(b)(5), 112.8(c)(1), 112.8(c)(2), 112.8(c)(4), 112.8(c)(6), 112.8(c)(7), 112.8(c)(8) and 112.8(c)(11); 40 CFR 112, Appendix F, Section 1.6.2)

Aboveground storage tanks at the facility meet the following standards and requirements:

1. Aboveground storage tank installations are provided with an adequate means of secondary containment or diversion system, designed and built pursuant to NJAC 7:1E-2.6, and 40 CFR 112.8(c)(2), except as otherwise noted, including amendments and supplements, where applicable.

2. The base underlying each storage tank is made of or surfaced with a material impermeable to passage or chemical attack by the stored substance under the conditions of storage prevailing within the tank.

3. Pipes leading to and from aboveground storage tanks which enter the tank below the liquid level are equipped with valves that are readily accessible in the event of a leak or discharge, and which are sufficiently close to the tank that they can be closed in the event of a pipe rupture outside the secondary containment to prevent the contents of the tank from escaping outside of the secondary containment. Such pipes do not penetrate or pass through any walls, dikes or berms used as secondary containment, or the pipe penetration is sealed properly to ensure that the impermeability or integrity of the secondary containment is not impaired.

4. Aboveground storage tanks with a capacity greater than 2,000 gallons and all appurtenant piping to the first valve were subjected to initial integrity testing or static head product testing on a schedule which took into account the age of the tank, proximity to surface water supplies, the leak record of the tank for the preceding five (5) years, and the date of the tank's last integrity test, as delineated in NJAC 7:1E-2.16.

Thereafter, each aboveground storage tank with a capacity greater than 2,000 gallons and its appurtenant piping to the first valve undergo a combination of hydrostatic testing, nondestructive testing, integrity testing and internal visual inspections (as appropriate), as defined in NJAC 7:1E-1.6 and 40 CFR 112.8(c)(6), at intervals based on the construction material of the tank, substances stored, soil conditions, corrosion allowance remaining, corrosion rate, leak history of the tank, degree of risk and the results of visual inspections, as described in this document pursuant to NJAC 7:1E-4.2(c). Tank integrity tests and internal inspections for tanks 10T572 (Vehicle Refueling - Gasoline; DPRP Location Number H47) and 10T573 (Vehicle Refueling - Diesel; DPRP Location Number H48) are conducted under API 653. The period of time between tests and internal inspections for all other DPCC applicable tanks shall not exceed five (5) years (See Table II-3D).

5. Reports on the initial integrity testing or static head product testing conducted for each aboveground storage tank required by NJAC 7:1E-2.2(a)4 were submitted to the NJDEP within thirty (30) days of completion of each test. Each report included identification of the facility and the equipment tested, the age of the equipment, the test method(s) used, date of the test(s), name and affiliation of the person performing the test, the summary test results, any repairs performed or scheduled to be performed after the test(s), and the expected service life of the equipment. In addition, each report was certified pursuant to NJAC 7:1E-4.11.

6. Aboveground storage tanks installed or placed into service on or after July 22, 1990 with a storage capacity greater than 2,000 gallons and all appurtenant piping to the first valve will be subject to integrity testing, as defined in NJAC 7:1E-1.6, prior to being placed into service. For shop fabricated tanks, testing done by the manufacturer at the site of manufacture is acceptable. Subsequent testing will be performed in accordance with NJAC 7:1E-2.2(a)4.

7. If a tank has been tested or inspected as required by 4 or 6 above and fails to meet the applicable standards as to structural integrity or where a condition has been determined to exist for which there is no standard as set forth in 4 or 6 above, but which, in the opinion of a responsible PSEG official, constitutes a condition which will threaten structural integrity, the tank shall be emptied and remain empty until it is repaired or replaced. Conditions

threatening structural integrity may include, but are not limited to, wall thinning, leaks, or extensive corrosion, pitting, or cracking.

8. All tanks used for storage are compatible with the material stored and the conditions of storage such as pressure and temperature, etc.

All regulated underground storage tanks (USTs) (NJAC 7:14B) have been removed from PSEG Nuclear LLC as discussed in Section 2.1.3 of this Part. There is no storage tank at the facility served by internal heating coils.

Storage tank installations at the facility are equipped with devices capable of detecting overfills as discussed through Sections 2.1.1 and 2.1.2 of this Part. All regulated storage tanks (NJAC 7:1E) are attended by facility personnel at all times during the filling procedure, and are equipped with direct communication between tank gauger and pumping station. In addition, for storage tanks having greater than 2,000 gallons capacity, the tank is either equipped with a high liquid level alarm with an audible or visual signal and fast response systems for determining liquid levels (i.e., monitored visible gauges or computer links), or provided with a level indicator or procedural control to alert plant personnel of overfills, except as otherwise noted. Administrative procedures may be used to limit material procurement to prevent tank overfills. Liquid level sensing devices are tested regularly to ensure proper operation.

Storage tank overfill lines are directed into secondary containment, other tanks, or other appropriate holding areas.

Mobile or portable storage tanks are positioned or located so as to be protected by secondary containment or diversion structures pursuant to NJAC 7:1E-2.6 and 40 CFR 112.8(c)(11) as discussed in Section 2.1.4 of this Part. These storage tanks are not located in areas subject to periodic flooding or washout.

Drum storage areas are equipped with adequate secondary containment pursuant to NJAC 7:1E-2.6 as delineated in Section 2.1.5 of this Part.

A variety of substances listed as hazardous are used in the daily operation of Salem and Hope Creek Generating Stations. Some of these substances are stored in bulk storage tanks and are replenished by tank truck deliveries. Aboveground tanks at Salem and Hope Creek Generating Stations are designed using standard engineering practices.

Tables II-1A and 1B include a listing of storage tanks in service at Salem and Hope Creek Generating Stations. They provide DPRP Equipment Inventory Map tank location and grid coordinates, tank capacity, material of construction, contents, type of secondary containment, etc. Table II-1C lists storage, laydown and process areas common to both Stations. Table II-1D lists areas where small amounts of chemicals are stored. Tanks are constructed in accordance with appropriate standards (i.e., API, ASME, ASTM, etc.). Prior to initiating deliveries, Standard Operating Procedures (SOPs) concerning tank truck unloading are consulted, and tank levels are measured to ensure that there is sufficient room for the delivery without causing an overflow.

Regulatory agency correspondence and contact memorandums which clarify, authorize, and approve the approach taken by PSEG Nuclear LLC in the preparation of its DPCC/DCR Plan are included in Volume 2, Appendix D, Regulatory Letters/Approvals.

2.1.1 Tanks Outside the Power Blocks

(NJAC 7:1E-2.2(d), 2.2(e), and 4.2(c)1*; 40 CFR 112.8(c)(8); 40 CFR 112, Appendix F, Section 1.6.2)*

Many tanks used for bulk storage of hazardous substances are located outside the Power Blocks. The main fuel oil storage tanks at Salem and Hope Creek Generating Stations are the largest capacity tanks. A brief discussion of significant outdoor tanks at Salem and Hope Creek Generating Stations is given below. Descriptions of secondary containment structures for these tanks are given in Section 2.4. For tank capacities, refer to Tables II-1A, 1B, and 1C. Tanks and equipment that hold hazardous substances for in-process use are characterized as process tanks and are described in Section 2.5.

2.1.1.1 Salem Generating Station

Main Fuel Oil Storage Tank

The Salem main fuel oil storage tank (Location No. S9) is located east of the Salem cooling water intake and inside a diked area. This steel tank is equipped with a level indicator. Operating personnel at the facility conduct an inspection of the tank and associated equipment daily. Emphasis is placed on proper housekeeping and maintenance practices to eliminate potential problems (Refer to Section 2.10, Housekeeping and Maintenance). The liquid level inside the tank is recorded daily and variations in volume are reconciled monthly. This tank has been granted an exemption by the NJDEP from installing overflow alarms. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D22 and D25. This storage tank is carefully monitored and controlled by operating personnel during all fill operations to ensure that no materials are lost.

Cooling Water Sodium Hypochlorite Storage Tanks

Two sodium hypochlorite storage tanks (Location Nos. S4, S5) are used for the cooling water system, and are located inside a common synthetic impermeable lined earthen dike southwest of the Unit 1 reactor. The tanks are lined steel and have a Uehling mercury level indicator. These tanks have been granted an exemption by the NJDEP from installing overflow alarms. The exemption is documented in Volume 2,

Appendix D, Regulatory Letters/Approvals, Document Nos. D22 and D25. These tanks are carefully monitored and controlled by operating personnel during all fill operations to ensure that no materials are lost.

"Used Oil" Storage Tank

One 3,500-gallon "used oil" storage tank (Location No. S160), located inside the Combo Shop (Location No. SH5), contains various used and/or surplus oils collected throughout the site. The steel tank is equipped with a visual level indicator. The tank is afforded secondary containment by the Combo Shop as described in Section 2.1.5 of this Part. This tank has been granted an exemption by the NJDEP from installing a primary and secondary means of overfill protection. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document No. D119. This storage tank is carefully monitored and controlled by operating personnel during all fill operations to ensure that no materials are lost.

Non-Radioactive Liquid Waste Disposal System (NRLWDS) Caustic Storage Tank/Polymer Mix and Feed Tanks

The Non-Radioactive Liquid Waste Disposal System (NRLWDS) has a caustic storage tank (Location No. S78) located inside the Chemical Treatment Building. The tank is made of fiberglass reinforced plastic, Durakane 411, and is equipped with a level indicator which is monitored at the NRLWDS operator control console. This tank has been granted an exemption by the NJDEP from installing a secondary means of overfill protection. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document No. D119. This storage tank is carefully monitored and controlled by operating personnel during all fill operations to ensure that no materials are lost.

The NRLWDS polymer mix and feed tanks (Location Nos. S76, S77) located inside the Chemical Treatment Building are constructed of stainless steel. These tanks, designed to store a coagulant for use in the treatment process, are empty and have never been used. A level indicator is installed on each tank. All spills or leaks are directed to the building chemical sumps which automatically discharge to the NRLWDS for treatment.

Fuel Oil Storage Tanks

Three 300-gallon steel tanks (Location Nos. S71, S72, S73) contain fuel oil and are mounted inside the Auxiliary Boiler Building. Each of these tanks has concrete curbing and a pad underneath, and a level indicator. Spills from any of these tanks flow to a floor drain which leads to skim tank No. 3, preventing any spills from reaching the River. Normal discharge from this skim tank is directed to the NRLWDS (DSN 48C) or NJPDES Outfall DSN 487.

Two 350-gallon steel tanks (Location Nos. S74, S75) contain fuel oil, and are mounted approximately eight (8) feet above the floor, inside the Fire Pump House. Each tank has a sight glass level indicator. Spills from either tank flow to a floor drain leading to skim tank No. 3, preventing any spilled materials from reaching the River. Normal discharge from this skim tank is directed to the NRLWDS (DSN 48C) or NJPDES Outfall DSN 487.

Oil/Water Separator "Used Oil" Storage Tank

These two steel tanks (Location No. S137), associated with the Salem oil/water separator, are located north of the oil/water separator. These tanks are equipped with level indicators. There is one 500-gallon "used oil" storage tank and one 5,000-gallon sludge storage tank. The tanks have a common concrete containment of 6,000 gallons. The containment diverts to the oil/water separator for treatment prior to discharge.

Propylene Glycol Storage Tank

A propylene glycol storage tank (Location No. S138) is located east of the Salem circulating water intake and immediately adjacent to the Circulating Water System (CWS) heating boiler. This steel tank is used to hold the heating boiler propylene glycol during system maintenance. Makeup to this 5,200-gallon tank is provided from 55-gallon drums on an as-needed basis only. This tank is sized to prevent the possibility of overfills and is under constant supervision during system draindowns. The tank has an audible/visual high level alarm. This tank previously contained ethylene glycol but has been replaced with propylene glycol, which is not listed as a hazardous substance pursuant to NJAC 7:1E, Appendix A.

2.1.1.2 Hope Creek Generating Station

Main Fuel Oil Storage Tank

The Hope Creek main fuel oil storage tank (Location No. H8) is located north of the Hope Creek Barge Slip inside a diked area. This tank is constructed of steel, has a Shand and Jurs automatic tank gauge, and a high level alarm. Facility operating personnel conduct daily inspections of the tank and associated equipment. Emphasis is placed on proper housekeeping and maintenance practices to eliminate potential problems (Refer to Section 2.10, Housekeeping and Maintenance). The liquid level inside the tank is recorded daily and variations in volume are reconciled monthly.

Circulating Water Caustic Storage Tank

This is a lined carbon steel caustic storage tank (Location No. H1) located west-southwest of the Hope Creek Cooling Tower and inside a diked area. The tank has a Unisonic level indicator and high level alarm.

Dispersant Storage Tank

This tank (Location No. H46) is located west-southwest of the Hope Creek Cooling Tower and inside a diked area. The dispersant is a proprietary chemical, Betz Powerline PEG 01, and is stored in a coated fiberglass reinforced plastic tank. The tank includes a sight glass level indicator. The tank is presently not in use, and the opening to the fill line is welded shut. This tank will be provided with a secondary means of overfill protection prior to putting the tank back into service.

Ammonium Bisulfite Storage Tank

The ammonium bisulfite storage tank (Location No. H14), constructed of coated fiberglass reinforced plastic, is located west-southwest of the Hope Creek Cooling Tower and inside a concrete diked area. A sight glass, remote Unisonic level indicator, and remote high level alarm are provided on the tank. This tank has been granted an exemption by the NJDEP from installing overflow alarms. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D22 and D25.

Sodium Hypochlorite Storage Tanks

Two sodium hypochlorite storage tanks (Location Nos. H2, H3) are located west-southwest of the Hope Creek Cooling Tower and inside a concrete diked area. The tanks are constructed of carbon steel with a Durakane 411 lining. A level indicator and high level alarm are installed on each tank.

Two additional sodium hypochlorite storage tanks (Location Nos. H4, H5) are located east of the Service Water Intake Structure (SWIS) and inside a concrete diked area. The tanks are constructed of carbon steel with a Durakane 411 lining. Each tank has a level indicator and high level alarm.

Auxiliary Boiler Chemical Feed Tanks

An ammonia feed tank (Location No. H23) and a hydrazine feed tank (Location No. H9) are located in a curbed area inside the Auxiliary Boiler Building. Each is a stainless steel tank with sight glass level indicator.

Auxiliary Boiler Fuel Oil Day Tank

The fuel oil day tank (Location No. H10) associated with the auxiliary boilers is located northwest of the Auxiliary Boiler Building and inside a concrete diked area. The tank is constructed of steel, has a sight glass level indicator, and a high level alarm.

"Used Oil" Holding Tank

The "used oil" holding tank (Location No. H24) is a part of the NJPDES Low Volume and Oily Waste (LVOW) Treatment System. This is a steel tank located inside a concrete diked area west of the Hope Creek Cooling Tower and has a level indicator. This tank has been granted an exemption by the NJDEP from installing a secondary means of overfill protection. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document No. D119. This storage tank is carefully monitored and controlled by operating personnel during all fill operations to ensure that no materials are lost.

Diesel Fuel Day Tanks

Two 300-gallon diesel fuel oil day tanks (Location Nos. H11, H13) are located outside the Fire Pump House. Each steel tank has an appropriate level indicator. Tank No. H13 is out of service and abandoned in place.

Guardhouse Diesel Generator Fuel Tanks

Two 275-gallon diesel generator fuel tanks (Location Nos. H20, H21) are located inside the Emergency Diesel Generator Building northwest of the main guardhouse. Each steel tank has an appropriate level indicator and is contained inside a common concrete diked area.

Vehicular Refueling Tanks

Two vehicle fuel tanks (Location Nos. H47, H48), located north of the Hope Creek Barge Slip, are installed inside a steel containment, and are further protected by a concrete containment. One tank (Location No. H47) contains gasoline and the other (Location No. H48) diesel fuel. Both are listed in Table II-1B. Each steel tank is equipped with a level indicator and an audible/visual high level alarm. Stormwater is pumped out by Maintenance and diverted to the NJPDES LVOW Treatment System prior to discharge.

2.1.2 Tanks Inside the Power Blocks

(NJAC 7:1E-2.2(d), 2.2(e) and 4.2(c)1; 40 CFR 112.8(c)(8); 40 CFR 112, Appendix F, Section 1.6.2)

A number of bulk storage tanks containing hazardous substances are located inside the Power Plant Buildings. These tanks are described in Tables II-1A, 1B, and 1C and shown on the DPRP Equipment Inventory Map. They hold a variety of chemicals including lubricating oil, sodium hydroxide, sulfuric acid, ethylene glycol, etc. The major bulk storage tanks located indoors are described in this Section. Indoor tanks and equipment which hold hazardous substances for in-process use are characterized as process tanks and are described in Section 2.5. Tanks inside the Power Blocks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

2.1.2.1 Salem Generating Station

2.1.2.1.1 Turbine Building

Hydrazine/Ammonium Hydroxide Storage Tanks

Two hydrazine solution tanks (Location Nos. S20, S21) and two ammonia solution tanks (Location Nos. S16, S17) are located on the Unit 1 side, 100-foot elevation of the Turbine Building. Each steel tank has a sight glass level indicator and contains either ammonium hydroxide or hydrazine. A concrete curb surrounds all four tanks and directs any flow to a floor drain. The floor drain is connected to the chemical waste tank which collects leakage and spillage from chemical processes throughout the plant for automatic transfer to the NRLWDS, an industrial wastewater treatment system. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

A steel tank (Location No. S18) used for ammonia storage, is located on the Unit 1 side, 120-foot elevation of the Turbine Building. The tank contains ammonium hydroxide solution and has a sight glass level indicator. A concrete curb directs all spills or leakage to a floor drain which leads to the chemical waste tank described below. This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

A poly tank (Location No. S19) is located on the 122-foot elevation of the Unit 1 side of the Turbine Building for storage of hydrazine solution. The poly tank is translucent, allowing for visual observation of the liquid level. A concrete curb surrounds the storage tank and directs any spills or leakage to a floor drain which leads to the chemical waste tank described below. This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Auxiliary Chemical Mixing Tanks

An auxiliary chemical mixing tank (Location Nos. S22, S23) is located on each of the Unit 1 and Unit 2 side, 100-foot elevation of the Turbine Building. These steel tanks were designed for mixing dry feedwater addition chemicals but this method of feedwater chemical treatment was never initiated. Presently, these tanks are unused and empty. A concrete curb surrounds each tank to direct spills to a floor drain which is connected to the chemical waste tank described below. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Sulfuric Acid Storage Tanks

Two sulfuric acid storage tanks (Location Nos. S32, S33) are located on the Unit 1 side, 88-foot elevation of the Turbine Building. These tanks are constructed of baked phenolic resin coated steel. A chemically resistant containment dike is installed around the tanks. Each tank has a level indicator in the demineralizer control area. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Two sulfuric acid storage tanks (Location Nos. S39, S40) are also located on the 88-foot elevation of the Unit 2 side of the Turbine Building. These tanks are made of lined steel and have a local level indicator and a high level alarm in the Unit 2 Condensate Polisher Building. An acid resistant concrete dike is installed around the tanks. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Any leakage or spillage outside the containment dike for S32 and S33 is routed to the chemical waste tank through dedicated floor drains and ultimately to treatment in the NRLWDS (S1, S2, S3). Any leakage or spillage outside the containment dike for S39 and S40 is routed to the Salem Generating Station oil/water separators (S68, S69, S137).

Caustic Storage Tanks

Two caustic storage tanks (Location Nos. S30, S31) containing sodium hydroxide solution are located on the Unit 1 side, 88-foot elevation of the Turbine Building. Each tank is made of epoxy enamel coated steel. A chemically resistant concrete containment structure surrounds the tanks. As with the acid tanks, the caustic tanks have individual level indicators in the demineralizer control area. Any leakage or spillage outside the containment dike is routed to the chemical waste tank through dedicated floor drains and ultimately to treatment in the NRLWDS. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Two lined steel caustic storage tanks (Location Nos. S7, S8) containing sodium hydroxide solution, are also located on the Unit 2 side, 88-foot elevation of the Turbine Building. Sight glass level indicators are installed on the tanks. These tanks are made of lined steel and have a local level indicator and a high level alarm in the Unit 2 Condensate Polisher Building. A caustic resistant dike surrounds both tanks. Any leakage or spillage outside the containment dike for these tanks is routed to the Salem Generating Station oil/water separators (S68, S69, S137). These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Chemical Waste Tank

The chemical waste tank (Location No. S26) for the plant is located on the Unit 1 side, 88-foot elevation of the Turbine Building. This rubber lined steel tank has a high level alarm. The tank receives chemical wastes from many areas throughout the plant. A concrete curb diverts spills from the tank to a floor drain which connects to the NRLWDS for treatment. This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Turbine Oil Receiving/Makeup Tank

The turbine oil receiving and makeup tank (Location No. S29) is a steel tank located on the Unit 1 side, 88-foot elevation of the Turbine Building. This tank is surrounded by a containment dike. A level indicator is installed on the tank. This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Steam Generator Feed Pump and Turbine Lube Oil Tanks

Salem Units 1 and 2 each have a steam generator feed pump and a turbine lube oil tank (Location Nos. S27, S28), located on the 100-foot elevation of their respective Turbine Buildings. Each steel tank is surrounded by a containment dike and has a sight glass level indicator. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Turbine Lube Oil Storage Tanks

Four turbine lube oil storage tanks (Location Nos. S34 through S37) are located on the 88-foot elevation of the Turbine Building, two on the Unit 1 side and two on the Unit 2 side. Each is made of steel. Each pair of tanks is surrounded by a common containment dike. Each tank has a sight glass level indicator. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Corrosion Inhibitor Storage Tanks

Three empty steel tanks (Location Nos. S41, S42, S43) are located on the Unit 2 side, 88-foot elevation of the Turbine Building. These steel tanks formerly contained a proprietary corrosion inhibitor, but are presently empty. Each tank has a sight glass level indicator. A concrete containment dike surrounds the tanks. There are currently no plans to utilize these tanks. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Turbine Lube Oil Reservoirs

Both Unit 1 and Unit 2 sides of the Turbine Building have a turbine lubricating oil reservoir (Location Nos. S24, S25) on the 120-foot elevation. Each steel tank is surrounded by a containment dike and has a level indicator. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

2.1.2.1.2 Auxiliary Building

Diesel Fuel Oil Storage Tanks

Four diesel fuel oil storage tanks (Location Nos. S50 through S53) are located on the 84-foot elevation of the Auxiliary Building, two on the Unit 1 side and two on the Unit 2 side. Each steel tank has a level indicator. A separate concrete room encloses each tank and serves as the secondary containment for the tanks. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Diesel Generator Fuel Oil Day Tanks

Six diesel generator fuel oil day tanks (Location Nos. S44 through S49) are located on the 122-foot elevation of the Auxiliary Building. Three tanks are located on the Unit 1 side and three on the Unit 2 side. The steel tanks have level indicators. Each tank is on a concrete pad and is situated inside a curbed area. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Potassium Dichromate Mixing/Storage Tanks

Potassium dichromate mixing/storage tanks (Location Nos. S54, S55) are steel tanks located on both the Unit 1 and Unit 2 sides of the 122-foot elevation of the Auxiliary Building. All spills and leakage in the Auxiliary Building are directed to floor drains and then routed to the radwaste treatment system for handling in accordance with applicable Nuclear Regulatory Commission regulations. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Radwaste Tanks

Tanks associated with the radioactive materials processing and treatment systems are not included within this document. These tanks and systems are regulated by the Nuclear Regulatory Commission and are designed, installed and maintained in accordance with 10 CFR requirements.

2.1.2.2 Hope Creek Generating Station

2.1.2.2.1 Turbine Building

Demineralizer Regenerant Waste Tank

The demineralizer regenerant waste tank (Location No. H22), located on the 54-foot elevation of the Turbine Building, is a steel tank which collects dilute spent acid and caustic from the demineralizer regeneration process. A level indicator and alarm is provided at the operator control console. The tank is surrounded by a containment dike with a drain connecting to the Liquid Radioactive Waste Treatment System (LRWTS). This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Caustic Storage Tanks

There are two steel caustic storage tanks (Location Nos. H6, H42) on the 54-foot elevation of the Turbine Building, located west and north of the demineralizer regenerant waste tank, respectively. Each tank has a Unisonic level indicator, high and low level alarm, and is surrounded by a containment dike with a drain connecting to the LRWTS. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Sulfuric Acid Storage Tanks

Two sulfuric acid storage tanks (Location Nos. H7, H43) are located on the 54-foot elevation of the Turbine Building. These tanks are similar to the caustic storage tanks. Each tank has a Unisonic level indicator, high and low level alarm, and is surrounded by a containment dike with a drain connection to the LRWTS. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Turbine Lube Oil Storage Tanks

Four turbine lube oil storage tanks are constructed of steel. The tanks are located on the 77-foot elevation of the Turbine Building. Two tanks (Location Nos. H16, H18) are for the Unit 1 reactor and two tanks (Location Nos. H17, H19) were for the canceled Unit 2 reactor and are currently not planned for use. The two Unit 1 tanks are in a concrete room with drains connecting to the LRWTS. Each tank has a Shand and Jurs level indicator. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Main Turbine Lube Oil Reservoir

The main turbine lube oil reservoir (Location No. H15) is located on the 102-foot elevation of the Turbine Building. This steel tank has a level indicator and is installed in a concrete room with a drain connecting to the LRWTS. This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Reactor Feed Pump Turbine Lube Oil Reservoirs

Three reactor feed pump turbine lube oil reservoirs (Location Nos. H25, H28, and H31) are located on the 123-foot elevation of the Turbine Building and are situated in separate concrete, curbed rooms with drains connecting to the LRWTS. Each steel tank has a sight glass level indicator. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Electro-Hydraulic Control Reservoir

The Electro-Hydraulic Control (EHC) steel tank reservoir (Location No. H44) is located on the 77-foot elevation of the Unit 1 side of the Turbine Building. This reservoir is surrounded by a curbed concrete dike and has a level indicator. This tank has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

2.1.2.2.2 Auxiliary Building

Diesel Fuel Oil Storage Tanks

Eight diesel fuel oil storage tanks (Location Nos. H26, H29, H32, H34, and H36 through H39) are located on the 54-foot elevation of the Auxiliary Building. Each steel tank has a level indicator and a high level alarm and is contained in a concrete containment room with a drain connecting to an oil interceptor and the

NJPDES LVOW Treatment System. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D17, D18, D19 and D20.

Diesel Generator Fuel Oil Day Tanks

There are four diesel generator fuel oil day tanks (Location Nos. H27, H30, H33, and H35) located on the 102-foot elevation of the Auxiliary Building in the Diesel Room. The tanks are made of steel and each tank has a level indicator and a high level alarm. Normally isolated floor drains direct any spills through an oil interceptor and the NJPDES LVOW Treatment System. These tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20.

Radwaste Tanks

Tanks which are part of the radioactive materials processing and treatment systems are not included within this document. These tanks and systems are regulated by the Nuclear Regulatory Commission and are designed, installed and maintained within the 10 CFR requirements.

2.1.3 Underground Storage Tank (UST)

(NJAC 7:1E-2.2(b) and 4.2(c)2; 40 CFR 112.8(c)(4))

Presently, there are no regulated underground storage tanks (USTs) (NJAC 7:14B) at Salem and Hope Creek Generating Stations.

2.1.4 Mobile or Portable Storage Tanks

(NJAC 7:1E-2.2(g) and 4.2(c)3; 40 CFR 112.8(c)(11))

Over-the-road tankers may be placed in designated locations at the Salem and Hope Creek Generating Stations while their contents are being used. Tank trucks which routinely deliver materials to the Stations are discussed in Section 2.3.

As an example, up to four tankers may be parked near the main transformers at Salem Generating Station during change of the dielectric fluid. This area is an asphalted surface. While the tank trucks are being utilized in this manner, inspections of the tank trucks are conducted periodically to prevent leaks or spills from the equipment.

A mobile dechromating demineralizer is used at Salem Generating Station. When in use, the demineralizer is placed inside a dedicated concrete curbed area to contain any leakage or spillage.

A small, temporary tank with 300-gallon capacity and integral secondary containment is stored outside the Hope Creek Fire Protection Pump House. This tank is used to provide intermittent makeup as required for the permanently installed fuel oil day tank. After the monthly surveillances are run, fuel oil is transferred from the temporary tank to top off the day tank (the day tank is required to remain at least 7/8 full).

Small, usually 300-gallon capacity, portable tanks are periodically used for refueling equipment during major evolutions. During the evolution, these tanks are placed inside a portable containment dike to contain any spillage. Upon completion, the tanks are returned to the hazardous waste compound and are stored.

2.1.5 Drum Storage Areas for Hazardous Substances

(NJAC 7:1E-2.2(h) and 4.2(c)3)

There are numerous warehouses, storage sheds, and laydown areas, both onsite and offsite, which store hazardous substances and equipment. These storage areas, listed in Table II-1C, are common to both Salem and Hope Creek Generating Stations and are described in this Section.

These areas are managed under Housekeeping and Maintenance, as described in Section 2.10. Drummed hazardous waste is accumulated (i.e., stored less than 90 days) and managed in accordance with the facility Hazardous Waste Contingency Plan as described in Section 2.15. The accumulation period may be extended to 180 days provided that all prerequisites as a designated Small Quantity Generator remain in effect.

Hazardous Waste Storage Facility

There are two (2) storage areas (Location Nos. SH3 and SH30), at the facility for temporary storage/accumulation of drummed hazardous waste. The major storage/accumulation area (Location No. SH3), is located inside the Protected Area, west of the Nuclear Operations Service Facility (NOSF).

Combo Shop

This is a large warehouse (Location No. SH5) with several annexes. The main warehouse has several cabinets containing cans of flammable materials. There are buckets, containers, and drums containing gasoline, oily wastes, grease, degreasers, etc. A temporary storage area inside the warehouse stores miscellaneous materials. Another part of the warehouse is utilized for universal waste batteries and materials staged for recycling. The concrete floor of the building is at an elevation below grade. A rubber containment provides spill protection.

Laydown Areas

Two laydown areas (Location Nos. SH6 and SH7) are located east of the Combo Shop and contain petroleum products, general scrap metal, several transformer heads, and stacked empty drums.

Materials Center

This warehouse (Location No. SH9) is for centralized receiving and storage of spare parts, office supplies, and equipment. A receiving dock is used to receive equipment and materials. Several sealed drums, containers, and buckets of oils and petroleum-based products are stored temporarily in the vicinity of the receiving dock. Containment pallets are provided for storage of incoming hazardous materials.

The Center contains a battery recharge room and a satellite battery recharge station. Any spill from the batteries flows to a floor drain and is collected in below-grade acid neutralization tanks made of plastic. The neutralized liquid via controlled valve overflows into the sanitary drain system from where it is pumped to the Sewage Treatment Plant (STP) for testing prior to its release.

Temporary Storage Area

The outdoor storage area (Location No. SH13) is used for temporary storage of transformers. It is located north of the Salem Access Road. The storage area has a concrete floor and walls for secondary containment. The containment is manually pumped to remove any spills or rainwater; oily water is removed for treatment onsite and discharged in accordance with the Salem NJPDES Permit.

Hazardous Materials Storage (HAZMAT) Facility

This HAZMAT Facility (Location No. SH27) is situated inside the security fence, east of the Materials Center (Location No. SH9), and is used to store hazardous materials onsite.

The facility consists of a 6-inch high asphalt concrete curb and elevated asphalt concrete paved area suitable for locating up to ten individual HAZ-STOR® modules furnished by HAZ-STOR® Company. Each HAZ-STOR® module has an integral containment sump, self-contained safety eye wash, electrical heat and ventilation fan, and storage racks.

Spills within the HAZ-STOR® module will be contained by the integral containment and sump system. Spills outside the module will flow towards a gravel filled discharge prevention zone for containment and removal.

2.1.6 Small Quantity Chemical Storage Areas

(NJAC 7:1E-4.2(c)3)

Items listed in Table II-1D present locations where small quantities of chemicals are used, stored, processed or handled. These areas are numbered and shown on the DPRP Equipment Inventory Map. The areas include laboratories, mobile test trailers, chemical storage areas, lockers, cabinets, buildings, etc. Chemicals found in these locations are managed under procedures NC.NA-AP.ZZ-0038, entitled "Chemical Control Program", and NC.CH-AP.ZZ-0038, entitled "Chemical Control Process". Some are also regulated under DPCC. This list includes chemicals such as sodium hypochlorite, acetone, hydrochloric acid, sulfuric acid, petroleum oil, nitric acid, sodium hydroxide, paints, primers, thinners, etc. All chemicals are handled by trained and qualified personnel only. All areas are subject to annual Community Right-to-Know survey and reporting requirements. Storage containers of chemicals in small quantity storage areas include, but are not limited to, 235-gallon totes, 55-gallon drums, 5- gallon pails, and various small sizes of bottles and aerosol cans. Detailed container type, quantity, and content for all areas containing chemicals at the Salem and Hope Creek Generating Stations are located in the Chemical, Radwaste and Environmental Department's files as part of the Community Right-to-Know inventory conducted annually and are available upon request. Further, all areas satisfy the requirements of NJAC 7:1E-2.2(h). Any significant quantities of chemicals present in these areas are listed individually in Tables II-1A, 1B, and 1C and shown on the DPRP Equipment Inventory Map as well.

2.2 MATRIX ANALYSES FOR TANK TESTING

(NJAC 7:1E-2.2(a) and 4.2(c)(1); 40 CFR 112.7(d) and 112.8(c)(6))

PSEG Nuclear LLC evaluated each aboveground storage tank with a capacity greater than 2,000 gallons to determine a schedule for initial integrity testing in accordance with NJAC 7:1E-2.2(a)4. Tables II-3A and 3B, Tank Spill Risk Matrix for Salem Generating Station and Hope Creek Generating Station, respectively, show the matrix scores and test completion dates for these tanks. NJDEP has reviewed the test results and concur that the requirements of NJAC 7:1E-2.2(a)4 and NJAC 7:1E-2.16 have been satisfied.

After initial integrity testing of the tanks, repeat integrity testing shall be conducted at intervals not to exceed five (5) years between test periods, unless testing is conducted under API 653, based on the construction material of the tank, substances stored, soil conditions, corrosion allowance remaining, corrosion rate, leak history of the tank, degree of risk, the results of visual inspections and the appropriateness of the inspection and maintenance program, pursuant to NJAC 7:1E-2.2(a)4 and 40 CFR 112.8(c)(6). A list of completed follow-up tests may be found in Table II-3C, Completed PSEG Nuclear LLC Tank Testing Matrix. Upcoming integrity testing can be found in Table II-3D, Upcoming PSEG Nuclear LLC Tank Testing Matrix and Schedule. It is noted that tank integrity tests and internal inspections for tanks 10T572 (Vehicle Refueling - Gasoline; DPRP Location Number H47) and 10T573 (Vehicle Refueling - Diesel; DPRP Location Number H48) are conducted under API 653. The period of time between tests and internal inspections for all other DPCC applicable tanks shall not exceed five (5) years (See Table II-3D).

2.3 TANK TRUCK TRANSFER AREAS

(NJAC 7:1E-2.2(a), 2.3, 2.6, 4.2(c)4, and 4.2(c)7; 40 CFR 112.7(a)(3)(ii), 112.7(c), 112.7(d), 112.7(h), 112.8(b)(1), 112.8(b)(2), 112.8(b)(3), 112.8(b)(4), 112.8(b)(5), 112.8(c)(2) and 112.8(c)(3); 40 CFR 112, Appendix F, Sections 1.4.1 and 1.7.3)

Tank truck loading/unloading areas employed in the transfer of hazardous substances at PSEG Nuclear LLC meet the minimum requirements set by the DOT and are paved or surfaced with impermeable materials, and equipped with an adequate means of secondary containment or diversion, designed and built pursuant to NJAC 7:1E-2.6 and discussed throughout this Section and in accordance with the approved alternative means of compliance documentation provided in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D66 and D74. All truck transfer areas are designed to provide truck containment and diversion and may not include an additional six (6) inches of rainwater as specified in NJAC 7:1E-2.6(c)2. When an additional six (6) inches of rainwater capacity is not provided, a sump pump will be utilized to compensate for the lack of a full six (6) inches of rainwater storage.

Transfer areas are provided with a diversion drain to either a treatment system or the yard drainage system. During truck loading/unloading, a plug is placed in the yard drain to prevent any spillage or leakage from escaping into the drain system. When transfer operations are not in progress, the drain is left unplugged to allow for unrestricted drainage of rainwater through the drain system.

Prior to the filling of any tank truck, the lowermost drain and all outlets of such vehicle are examined in accordance with the applicable facility Standard Operating Procedure (SOP) to ensure they are closed and the truck meets the minimum requirements of the DOT.

Prior to the filling and prior to departure of any tank truck, the lowermost drain and all outlets of such vehicles are closely examined for leakage, in accordance with the applicable facility SOP, and if necessary, tightened, adjusted, repaired or replaced so as to prevent liquid leakage in transit. Manifolds on tank trucks are flanged or capped, and valves secured, prior to leaving transfer areas.

A system to prevent tank truck departure before complete disconnect of transfer lines, such as a physical barrier (i.e., wheel chocks) or brake interlock system, are utilized in transfer areas.

Tank trucks in the process of being loaded or unloaded are attended at all times during the process, in accordance with the applicable facility SOP.

2.3.1 Tank Truck Unloading

Liquid chemicals, lubricating oils, fuel oils, and other petroleum products are delivered to the facility in over-the-road tank trucks. These tank trucks unload their contents into the tanks discussed in Section 2.1. Secondary containment and monitoring by PSEG Nuclear LLC personnel are provided at areas where these tank trucks are designated to deliver their materials. Off-loading connections are provided with catch facilities to collect any spillage or hose residual from the transfer operations. In the event these materials must be removed from the site, the same truck secondary containments are used to contain any spillage or leakage. Where possible and reasonable, secondary containments for unloading/loading different materials have been combined to minimize the number of handling areas.

Transfer areas are provided with a diversion drain to either a treatment system or the yard drainage system. During truck unloading, a plug is placed in the yard drain to prevent any spillage or leakage from escaping into the drain system. When transfer operations are not in progress, the drain is left unplugged to allow for unrestricted drainage of rainwater through the drain system.

Each tank truck transfer area is discussed below and is individually listed in Tables II-2A and 2B for Salem and Hope Creek Generating Stations, respectively. Shower and/or eye wash facilities are available at all chemical unloading areas.

To ensure maximum protection of employees at the facility, the public and the environment, PSEG Nuclear LLC has developed detailed operating instructions for tank truck deliveries.

2.3.2 Salem Generating Station Transfer Areas

There are nine (9) active tank truck unloading areas at the Salem Generating Station which are described below. Refer to Table II-2A or the DPRP Equipment Inventory Map for their locations.

NOSF Temporary Equipment Containment

The Nuclear Operations Service Facility (NOSF) Temporary Equipment Containment (Location No. S56) is a (13' W x 70' L x 6 1/2" D) concrete containment area used for the temporary storage of various equipment and materials. A central drain is isolated during transfers. Any collected stormwater is discharged via the yard drain system via DSN 463A.

Acid/Caustic Unloading Areas

The Condensate Polishing System Acid/Caustic Unloading Area (Location No. S81) is a curbed, concrete pad sloped to the central drain which connects to the yard drain system (DSN 489) which is isolated during chemical transfer. A small containment structure which drains to the chemical waste tank is located under the hose connections to ensure leaks from the connections are properly contained.

The Demineralizer Plant Acid/Caustic Unloading Area (Location No. S83) is a concrete slab completely surrounded by a grated acid/caustic resistant trench. Any spill flows to the trench and is routed through the chemical waste tank to the NRLWDS Treatment System (DSN 48C). A nearby hose is used to wash spills into the trench. A small containment structure which also drains to the chemical waste tank is located under the hose connections to ensure that leaks from the connections are properly contained.

The NRLWDS Caustic Unloading Area (Location No. S86) is a curbed, concrete pad with drains connecting to the NRLWDS chemical sump for processing leaks through the treatment system (DSN 48C). A small containment structure is located under the hose connections to drain any leaks from the connections to the chemical sump.

Ammonia/Lubricating Oil Unloading Area

Ammonia (ammonium hydroxide) and turbine lubricating oils are unloaded at this location (Location No. S82) into their respective systems adjacent to the Unit 1 main transformers. This area is a curbed concrete secondary containment with a central drain which connects to the yard drain system (DSN 489) and is isolated during chemical transfer. A small bermed containment structure which drains to the chemical waste tank is located under the ammonia hose connection to ensure that leaks from the connections are properly contained.

Sodium Hypochlorite Transfer Area

This area (Location No. S85) is a curbed concrete pad with a central drain connecting to the yard drain system (DSN 488). Should a spill occur within the truck unloading area, any collected material will be pumped via temporary sump to the adjacent NJPDES wastewater treatment facility.

In addition, a small container or drip pan is located under the hose connection to contain any leaks from the connections. All unloading valves and connections are within the containment structure. This transfer area has been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D66 and D74.

Main No. 2 Fuel Oil Unloading Area

The Main No. 2 Fuel Oil Unloading Area (Location No. S84) has a concrete floor and is completely surrounded by a concrete curb. A central drain connects to the yard drain system (DSN 488). The area under the hose connections is concrete and sloped so that spills drain to the curbed area. Spills are removed from the curbed area using a pump or absorbent material as appropriate.

Oil/Water Separator Transfer Area

The Oil/Water Separator Transfer Area (Location No. S87) has a concrete floor and is surrounded by a concrete curb. A central drain releases into the inlet chamber of the oil/water separator and is discharged via DSN 489. The containment size is 6,000 gallons.

Dichromated Skid Truck Containment

The Dichromated Skid Truck Containment (Location No. S136) is located within a stand alone building and has a concrete floor and is surrounded by a concrete curb. Any leak is contained within the structure.

2.3.3 Hope Creek Generating Station Transfer Areas

There are eight (8) truck unloading areas at the Hope Creek Generating Station which are described below. Refer to Table II-2B or the DPRP Equipment Inventory Map for their locations.

Main No. 2 Fuel Oil Unloading Area

The Main No. 2 Fuel Oil Unloading Area (Location No. H76) has a concrete surface and is completely surrounded by concrete curbing. The containment has a diversion drain to Lift Station 1B of the NJPDES LVOW Treatment System (DSN 461A). A curbed, concrete area and an inlet under the hose connection direct all leaks at the connection to Lift Station 1B as well. This is also the transfer area for two vehicular refueling tanks as described in Section 2.4.1.1.2.

Cooling Tower Chemical Transfer Area

The Cooling Tower Chemical Transfer Area (Location No. H77) serves for the unloading of sodium hydroxide, dispersant (Betz Powerline PEG 01), ammonium bisulfite, and sodium hypochlorite. The area has a diversion drain directed to the NJPDES LVOW Treatment System (DSN 461A). The drain is valved to allow isolation of the NJPDES LVOW Treatment System from large quantities of chemicals but allows rinsing of spillage and rainwater removal. There is a catch basin directly beneath the hose connections to collect and direct any spillage to the NJPDES LVOW Treatment System.

The chemical dispersant is currently not being used in the treatment process and the dispersant storage tank is empty.

Auxiliary Boiler Fuel Oil Unloading Area

The Auxiliary Boiler Fuel Oil Unloading Area (Location No. H79) has a concrete pad and curbing sufficient to hold the contents of the largest compartment of an unloading tanker. A diversion drain in the containment area drains to the NJPDES LVOW Treatment System (DSN 461A). A curbed, concrete area and an inlet under the hose connection direct any spills to the NJPDES LVOW Treatment System as well.

Demineralizer Regenerant/Turbine Lubricating Oil Transfer Area

The Demineralizer Regenerant/Turbine Lubricating Oil Transfer Area (Location No. H78) is the location at which demineralizer regenerant chemicals, sodium hydroxide, sulfuric acid, and turbine lubricating oils are transferred into the plant storage tanks. The area has a curbed concrete pad which extends beneath the unloading hose connections and an integral drain directed to the NJPDES LVOW Treatment System (DSN 461A). The valved drain isolates the NJPDES LVOW Treatment System from large quantities of chemicals but allows rinsing of spillage and rainwater removal.

Service Water Sodium Hypochlorite Transfer Area

This area (Location No. H80) has a curbed concrete pad with an integral drain which connects to the yard drainage system (DSN 463A). The area beneath the unloading hose connections has a catch basin to collect and direct any spillage to the sodium hypochlorite tank dike. A freshwater hose connection is used to dilute any spillage and for personal protection.

NJPDES Low Volume Oily Waste (LVOW) Transfer Area

The NJPDES Low Volume Oily Waste (LVOW) Transfer Area (Location No. H81) consists of a poured concrete vault with an integral drain connecting to the NJPDES LVOW Treatment System. A temporary transfer area is available to accommodate the annual shipment of used and/or surplus oil.

Diesel Generator Fuel Oil Unloading Area

The Diesel Generator Fuel Oil Unloading Area (Location No. H82) consists of a curbed concrete pad with an integral valved drain connecting to the NJPDES LVOW Treatment System (DSN 461A). The hose connections are located within the containment area to collect any leakage or spillage.

Chiller Building Unloading Area

The Chiller Building Unloading Area (Location No. H98) has a curbed concrete pad. This area is managed under the Housekeeping Program.

2.4 SECONDARY CONTAINMENT/DIVERSION SYSTEMS

(NJAC 7:1E-2.2(a), 2.6, and 4.2(c)7; 40 CFR 112.7(a)(3)(iii), 112.7(c), 112.7(h), 112.8(b)(1), 112.8(b)(2), 112.8(b)(3), 112.8(b)(4), 112.8(b)(5), 112.8(c)(1), 112.8(c)(2), 112.8(c)(3) and 112.8(c)(8); 40 CFR 112, Appendix F, Sections 1.4.1, 1.6.2, 1.7.3 and 1.8.1.3)

To the maximum extent practicable, all areas of the facility in which petroleum and hazardous substances are routinely refined, produced, stored, held, handled, processed, or transferred are designed and constructed so that any leak will be prevented from becoming a discharge.

Impermeable secondary containment or diversion structures to prevent leaked hazardous substances from becoming discharges include dikes, berms or retaining walls, curbing, catch basins, diversion ponds, lagoons, retention basins, holding tanks, sumps, drip pans, liquid waste treatment systems, gutters, culverts and drainage systems.

Secondary containments or diversion systems, structures or equipment at PSEG Nuclear LLC meet the following standards:

1. Secondary containments or diversion systems are capable of blocking all probable routes by which leaked hazardous substances could reasonably be expected to become discharges.

2. Tank secondary containments or diversion systems, except as otherwise noted and approved by the NJDEP, have additional capacity to accommodate six (6) inches of rainwater, if the secondary containments or diversion structures are located such that rainwater could accumulate in it, and the capacity is designed to include:

    a. For storage areas, the volume of the largest tank or drum utilizing the system;

    b. For tank truck transfer areas, the volume of the largest compartment in any tank truck utilizing the area, and a diversion system to direct accumulated rainwater to a treatment system;

    c. For buried pipes, the maximum volumetric flow rate multiplied by the maximum amount of time between the detection of a leak and/or the shutdown of the system, whichever is greater (new construction only); or

    d. For process areas, the contained volume of the largest piece of equipment in the area, or the volumetric flow rate through the area multiplied by the maximum amount of time between the detection of a leak and the shutdown of the system, whichever is greater.

3. All components of the secondary containments or diversion systems are made of or lined with impermeable materials, and are maintained in an impermeable condition. Existing systems for existing aboveground storage tanks are exempt from this requirement if the existing system:

i. Can protect groundwater for the period of time needed to clean up and remove a leak, up to the entire volume of the largest tank utilizing the system;

ii. Allows the visual detection of leaks; and

iii. Is inspected daily.

4. Spills or leaks within or outside of the facility buildings are contained and/or diverted to the appropriate treatment systems for processing prior to their release to the Delaware River in accordance with the current NJPDES permits as described in Section 2.4.2 of this Part, or collected for offsite disposal as needed.

5. Catchment basins are not located in a manner that would subject them to flooding.

6. No incompatible materials are stored within the same containment area.

7. Spills or leaks are cleaned up and removed promptly from the secondary containment or diversion system as described in Section 2.10 of this Part. If required, spill/discharge response activities will be initiated in accordance with Part III, Spill/Discharge Response Plan. In addition, no secondary containment system at the facility is used as a backup storage system or for any other purpose that would impair its capacity to contain leaks.

8. Sufficient flotation booms and sorbent materials are maintained onsite to contain and prevent the further spread of potential discharges of nonmiscible lighter-than-water hazardous substances (i.e., fuel oil) as described in Part III, Section 3.

9. Stormwater collected in any secondary containment structure is analyzed prior to disposal. Disposal is managed through a NJPDES permitted treatment system or outfall. Stormwater falling in any containment not in service passes freely to treatment or to a permitted NJPDES outfall.

Tables II-1A, 1B, and 1C outline the container type, containment type, container/containment capacity, product type, locations, level devices and corrosion protection provided at each storage, process or transfer area.

2.4.1 Containment Structures

Impermeable containment structures are in place at the facility where practicable. All structures are designed and maintained to block all probable routes by which spilled oil and hazardous substances could reasonably be expected to flow, migrate, or escape from within the contained area. Several different types of secondary containment structures are used at the facility. These structures include dikes, berms, curbs, drip pans, catch basins, and sumps, and are made of impermeable materials such as concrete, clay, or membrane liner and asphalt topping.

Equipment and systems without containment are either under daily surveillance by facility personnel to prevent spills, and/or are diverted to one of the treatment systems onsite as described in Section 2.4.2, Diversion Systems.

2.4.1.1 Containment Structures for Tanks Outside the Power Blocks

(40 CFR 112.8(b)(1) and 112.8(c)(3))

2.4.1.1.1 Salem Generating Station

The following is a description of the secondary containment of each tank. For containment capacity, refer to Table II-1A.

Main Fuel Oil Storage Tank (Location No. S9)

This tank has a secondary containment which consists of a gravel dike with an impermeable membrane liner. The secondary containment floor is part concrete and part natural soil covered with an impermeable liner. Rainwater and oil can be removed from the dike by pumping or by vacuum truck and diverted to the oil/water separator for treatment prior to discharge.

Cooling Water Sodium Hypochlorite Storage Tanks (Location Nos. S4, S5)

A common secondary containment to the two tanks is provided by a synthetic impermeable liner over a sand/gravel/earthen dike. The floor of the diked area is of earthen material with a synthetic impermeable liner, with the tanks supported on a concrete pad. Four pipes penetrate the dike. The pipes are suitably sealed in the dike wall. Any liquid accumulation in the dike, primarily rainwater, is chemically analyzed prior to removal by portable pumps or a vacuum truck.

"Used Oil" Storage Tank (Location No. S160)

This steel tank is located inside the Combo Shop (Location No. SH5). The tank is equipped with a visual level indicator. The tank has a capacity of 3,500 gallons and is afforded secondary containment by the Combo Shop as described in Section 2.1.5 of this Part.

NRLWDS Caustic Tank (Location No. S78)

The caustic tank is in a concrete diked area. An automatic sump pump in the diked area moves any spilled material to the influent end of the NRLWDS for treatment. This tank is located inside of the NRLWDS Control Building.

Fuel Oil Storage Tanks (Location Nos. S71, S72, S73, S74, S75)

Three steel tanks (Location Nos. S71, S72, S73) contain fuel oil and are mounted inside the Auxiliary Boiler Building. The building has a concrete floor and curbing, and each tank has a level indicator. Spills from any of these tanks flow to a floor drain which leads to skim tank No. 3, preventing any spills from reaching the River. Normal discharge from this skim tank is directed to the NRLWDS (DSN 48C) or NJPDES Outfall DSN 487. These tanks are managed under the Housekeeping Program.

Two tanks (Location Nos. S74, S75) are located inside the Fire Pump House which has a diversion drain to skim tank No. 3. Normal discharge from this skim tank is directed to the NRLWDS (DSN 48C) or NJPDES Outfall DSN 487. These tanks are managed under the Housekeeping Program.

Propylene Glycol Storage Tank (Location No. S138)

The propylene glycol storage tank is protected by a steel box containment. Accumulated stormwater is tested prior to pumping by the Maintenance Department. This tank previously contained ethylene glycol but has been replaced with propylene glycol, which is not listed as a hazardous substance pursuant to NJAC 7:1E, Appendix A.

2.4.1.1.2 Hope Creek Generating Station

The following is a description of the secondary containment of each tank. For containment capacity, refer to Table II-1B.

Main Fuel Oil Storage Tank (Location No. H8)

The containment surrounding the main fuel oil storage tank is constructed of clay and crushed rock. The containment floor is also clay and gravel lined. The tank rests on a concrete pad. An inlet in the dike floor directs spills and rainwater to Lift Station 1B for treatment in the NJPDES LVOW Treatment System.

Circulating Water Caustic Storage Tank (Location No. H1)

This tank shares a common concrete containment with the dispersant storage tank. Minor spills and rainwater flow to an inlet located inside the containment which routes them through valved piping to the NJPDES LVOW Treatment System.

Dispersant Storage Tank (Location No. H46)

This tank shares a concrete secondary containment with the circulating water caustic storage tank. This tank has been removed from service.

Ammonium Bisulfite Storage Tank (Location No. H14)

The concrete containment dike surrounding the tank has a valved drain to the NJPDES LVOW Treatment System. The secondary containment for this tank is isolated from the secondary containment for the circulating water caustic and dispersant storage tanks.

Sodium Hypochlorite Storage Tanks (Location Nos. H2, H3, H4, and H5)

The two sodium hypochlorite storage tanks (Location Nos. H2, H3) located west-southwest of the Hope Creek Cooling Tower have a common concrete containment. A valved inlet in the containment floor directs spills or rainwater to the NJPDES LVOW Treatment System (DSN 461C) prior to discharge through the Hope Creek Cooling Tower Blowdown (DSN 461A).

The two sodium hypochlorite storage tanks (Location Nos. H4, H5) located east of the Service Water Intake Structure also have a common concrete secondary containment. The diked area has a valved drain to DSN 463A. Accumulation of liquids in the diked area, primarily rainwater, is chemically analyzed prior to discharge.

Auxiliary Boiler Chemical Feed Tanks (Location Nos. H9, H23)

Each of the tanks is situated within a curbed area. Floor drains within the curbed area route any spills to Lift Station 1C of the NJPDES LVOW Treatment System.

Auxiliary Boiler Fuel Oil Day Tank (Location No. H10)

The fuel oil day tank has a concrete containment surrounding the tank and has a valved inlet which drains to the NJPDES LVOW Treatment System.

Diesel Fuel Day Tanks (Location Nos. H11, H13)

Each of the two diesel fuel day tanks has a concrete containment beneath it. Spills are removed using a pump or absorbent, as appropriate. The tank at Location No. H13 is out of service and abandoned in place.

"Used Oil" Holding Tank (Location No. H24)

This tank is surrounded by a concrete dike with a sump located at the low point. After analysis, the dike is drained to the Hope Creek Cooling Tower Blowdown discharge.

Guardhouse Diesel Generator Fuel Tanks (Location Nos. H20, H21)

The two tanks are surrounded by a common concrete containment. Spills are removed using a pump or absorbent, as appropriate.

Vehicular Refueling Tanks (Location Nos. H47, H48)

Each of the two steel vehicle fuel tanks, one for gasoline (Location No. H47) and one for diesel (Location No. H48), are situated inside a steel containment and is further protected by concrete containment. Spills are removed either by pumping or using absorbent, as appropriate. Stormwater is diverted to the NJPDES LVOW Treatment System prior to discharge.

2.4.1.2 Tanks Inside the Power Blocks

All indoor bulk storage tanks have been granted an exemption by the NJDEP from the DPCC Program. The exemption is documented in Volume 2, Appendix D, Regulatory Letters/Approvals, Document Nos. D19 and D20. All tanks are provided with diversion systems allowing spills/leakage to be directed to one of the treatment systems permitted under NJPDES or have concrete dikes or curbing. In the event of an equipment failure releasing a hazardous substance within the Power Plant Buildings, the spilled material will be contained by isolation at the dike, the Power Plant sumps (i.e., the building will act as containment), or diverted to a designated treatment system, which will act as the secondary or tertiary containment where the spill is collected, treated, and released under the NJPDES Permitting Program.

Furthermore, spills/leaks are prevented from reaching the lands or waters of the State by employing good housekeeping and maintenance procedures (i.e., inspections and checklists) as described in Section 2.10, Housekeeping and Maintenance. Contents escaping from any of these tanks or valves would be identified during daily inspections.

2.4.1.3 Mobile or Portable Storage Tanks

Mobile or portable storage tanks are protected by adequate secondary containment of sufficient capacity to contain or divert the contents of the tanks and will not be located in areas subject to periodic flooding or washout. Portable tanks used for refueling equipment are placed in temporary secondary containment structures to contain any accidental spills. A curbed concrete pad inside a building is used for the mobile dechromating demineralizer. The pad is large enough to contain the entire contents of the demineralizer. Any leakage or spillage is removed with a portable pump or absorbent.

2.4.1.4 Drum Storage Areas for Hazardous Substances

Common storage and process areas which store hazardous substances and oil-filled equipment are provided with concrete flooring. Concrete or block curbing, where necessary, is utilized to provide secondary containment around each cluster of oil-filled equipment and hazardous material drum storage.

These areas are managed under the Housekeeping, Maintenance, and Inspection Program detailed in Section 2.10. Spill abatement materials are maintained at several locations at the site.

2.4.1.5 Small Quantity Chemical Storage Areas

These areas are generally labs and testing facilities where chemicals are stored and used in small quantities. These are generally stored in cans and containers inside drip pans or secondary containment. The areas are managed under the Housekeeping Program.

2.4.1.6 Oil-Containing Electrical Equipment

Large transformers are typically equipped with internal devices that monitor oil levels and temperature. The monitors detecting a five (5) percent or greater loss of dielectric fluid would alert PSEG Nuclear LLC personnel of a problem. Smaller transformers, oil circuit breakers (OCBs), switches, and miscellaneous electrical equipment that may not have such monitors, upon failure, would typically upset the electrical system resulting in the failure being detected. To further guard against discharges, responsible departments perform weekly transformer area inspections for transformers with no secondary containment or diversion systems. A log, used for each inspection, is maintained at the facility in accordance with the facility Records Management Program. In addition, more detailed transformer inspections are conducted quarterly.

PSEG Nuclear LLC uses good engineering practices during installation of new oil-filled electrical equipment. As a part of this, secondary containment or diversion has been provided for large oil-filled transformers. To further guard against unidentified discharges, selected transformer drains to the Salem oil/water separator may be isolated to allow visual identification of oil leakage. When existing electrical equipment is upgraded and/or replaced, PSEG Nuclear LLC will install secondary containment structures and/or diversion systems on a scheduled basis where practicable.

2.4.2 Diversion Systems

(40 CFR 112.8(b)(1), 112.8(b)(3), 112.8(b)(4) and 112.8(b)(5))

2.4.2.1 Facility Drainage

The facility has a diversion/treatment system which collects and treats stormwater runoff from key areas, and effluent from various systems for each Station, as described in Part III, Section 1.2. Spills that may occur are either directly contained or drain into a collection/diversionary system which discharges into a designated treatment system or NJPDES monitored and permitted outfall. A discussion of the influent from each process area into a designated treatment system is given in Section 2.5.

Salem and Hope Creek Generating Stations are authorized by the NJDEP, through the NJPDES Permitting Program, to discharge stormwater runoff, and liquid effluents from the treatment systems into the Delaware River. Copies of the approved permits are presented in Volume 2, Appendix E, Salem NJPDES Permit (No. NJ0005622), and Appendix F, Hope Creek NJPDES Permit (No. NJ0025411).

All effluent discharge points are identified with a unique Discharge Serial Number (DSN). DSN locations are shown on Map 1, General Site Plan. Several discharges are related to a treatment facility and are assigned limitations on the effluent quality. Any oil or hazardous substance spill is evaluated to preclude a release to the Delaware River. The facility is designed to ensure that the largest probable spill will not be discharged.

2.4.2.2 Salem Generating Station

Salem Generating Station has been issued NJPDES Permit No. NJ0005622 by the NJDEP. This permit authorizes discharges from non-contact cooling water (DSNs 481 through 486), yard drainage systems (DSNs 487 and 489), and the Non-Radioactive Liquid Waste Disposal System (NRLWDS) industrial wastewater treatment system (DSN 48C). Three (3) other outfalls (DSNs 488, 490, and 491) at the Salem Generating Station only carry stormwater runoff and do not require analytical monitoring under the current NJPDES Permit. The permit has been reissued by the NJDEP effective June 29, 2001. Currently, a resubmittal application was submitted to NJDEP in December 2003 and is pending approval. A schematic of the Salem Generating Station NJPDES DSN flows is shown on the series of Figure II-1.

Non-Contact Cooling Water

The once-through, non-contact cooling process water that is utilized to remove residual heat in the steam electric generation process is discharged through DSNs 481 through 486.

Yard Drainage Systems

DSN 487 is the north yard drainage system which includes influents from stormwater inlets, roof drains, a flood pump and river water influx. DSN 488 is the west yard drainage system which includes influents from stormwater inlets, roof drains, service water strainer backwash, and river water influx. Manholes are provided along the length of the yard drainage systems to facilitate maintenance and provide a point of collection if a hazardous substance inadvertently enters the system. Absorbents and oleophilic booms are available (See Part III, Spill/Discharge Response Plan) for insertion into the manholes downstream of a spill to preclude any release to the waters of the State. No monitoring is required for NJPDES purposes.

DSN 489 is the south yard drainage system. The system includes influents from stormwater inlets, and the Nos. 1 and 2 oil/water skimmers. The Nos. 1 and 2 oil/water skimmers collect drainage from the switchyard where oil-filled transformers are located, the drainage areas beneath the main and station power transformers, and the non-chemical sumps of the Turbine Building.

Stormwater systems DSN 490 and 491 are located east of the plant and do not come into contact with any industrial materials. No monitoring is required for NJPDES purposes.

Manholes are provided along the length of the yard drainage systems to facilitate maintenance and provide a point of collection if a hazardous substance inadvertently enters the system. Absorbents and oleophilic booms are available (See Part III, Spill/Discharge Response Plan) for insertion into the manholes downstream of a spill to preclude any release to the waters of the State.

<u>Non-Radioactive Liquid Waste Disposal System (NRLWDS)</u>

DSN 48C discharges the effluent from the Non-Radioactive Liquid Waste Disposal System (NRLWDS), the industrial wastewater treatment system at the Salem Generating Station. The NRLWDS collects wastewater from chemical handling and process areas throughout the Station, such as the demineralization area and feedwater chemical area. The NRLWDS provides equalization, neutralization, precipitation (clarification), coagulation, and filtration capabilities to treat the wastewater prior to discharge in accordance with the NJPDES permit limitations. Automatic system shutdowns and recycle capability prevent the discharge of corrosive hazardous substances.

Oil/Water Separator System (Location No. S137)

This system, composed of two oil/water separators (1BDE16/1BDE17), is designed based on a peak flow requirement of 5,200 gpm. However, this system can handle a peak flow rate of 8,000 gpm (4,000 gpm for each separator tank); this flow rate will allow for future expansion or modification to the current drainage system. This system processes all wastewater flowing through manhole No. 15, including Turbine Building sumps and stormwater from catch basins of existing transformers. Effluent treated by this system is discharged through DSN 489 into the Delaware River.

This separator system consists of an influent chamber, two 40,000-gallon API oil/water separator units, a lift chamber, an effluent chamber, a 500-gallon "used oil" storage tank (1BDE24) and a 5,000-gallon sludge storage tank (1BDE23). Two oil/water separator control panels provide audible/visual alarms and auto/manual controls for each oil/water separator unit.

The oil/water separators are mounted in a concrete containment chamber (98' x 36' x 28'). The sludge and "used oil" storage tanks are mounted on a common concrete containment slab with a drain leading to the influent chamber of the oil/water separator. This common containment has a capacity of 6,000 gallons. A second curbed concrete containment slab with 11-inch curbing is located next to the storage tanks and is used for truck parking during oil and sludge transfer. Double-walled piping is used between the oil/water separator and the storage tanks to provide additional spill protection.

The oil collected in the separators is pumped into the "used oil" storage tank and can be stored in the holding tank for a period of 90 days before transfer to a licensed disposal facility. The sludge collected in the separators will be pumped into the sludge storage tank. The sludge will be transferred to a licensed disposal facility for disposal.

2.4.2.3 Hope Creek Generating Station

Hope Creek Generating Station has been issued NJPDES Permit No. NJ0025411 by the NJDEP. This permit authorizes discharges from the Cooling Tower Blowdown (DSN 461A), the NJPDES LVOW Treatment System (DSN 461C), Yard Drainage Systems (DSNs 462A, 463A and 464), and the Domestic Sewage

Treatment Plant (DSN 462B). The permit has been reissued by the NJDEP effective March 1, 2003. Currently, a resubmittal application was resubmitted to NJDEP in September 2007 and is pending approval. A schematic of the Hope Creek Generating Station NJPDES DSN flows is shown on the series of Figure II-2.

Cooling Tower Blowdown

DSN 461A is the designation for the cooling tower blowdown effluent. The cooling tower removes residual heat from the non-contact cooling water (river water) through evaporation and maintains the chemical concentration of the river water in the bottom of the cooling tower. To maintain this concentration at an operable level, makeup river water is introduced into the cooling tower and excess water flows to the river through the cooling tower blowdown line. The cooling tower process water is treated with low concentrations of sodium hydroxide, sodium hypochlorite, and the cooling tower blowdown water is treated with ammonium bisulfite. The storage and process areas for these chemicals are designed to prevent unmetered amounts from entering the cooling tower system. These chemical storage and process area drains are primarily directed to the NJPDES LVOW Treatment System with the exception of the process area for ammonium bisulfite. Any spillage in the Ammonium Bisulfite Building is directed to the cooling tower blowdown line for assimilation. Ammonium bisulfite is used to reduce the oxidants in the cooling tower blowdown and the amount which could be leaked under the worst scenario would be assimilated prior to discharge.

NJPDES Low Volume and Oily Waste (LVOW) Treatment System

DSN 461C is the effluent from the NJPDES LVOW Treatment System. The NJPDES LVOW Treatment System is designed to treat low volumes of petroleum oils. The system consists of a packed, corrugated plate separator, sludge holding tank, and "used oil" tank.

The used oil collection system receives waste streams from transformer catch basins, switchyard underdrains, the fuel oil tank dike and transfer station, secondary containments for tank truck loading/unloading areas, emergency diesel fire pump oil tank dike drains, the Turbine Building emergency sumps, and miscellaneous equipment drains. The low volume system collects waste streams from cooling tower chemical tank dikes and drains (sodium hydroxide and sodium hypochlorite), chlorine analyzer drains, Circulating Water System Building drains, the fuel oil day tank containment drains, and the Auxiliary Boiler Building drains.

Collected used oil streams are processed through an oil/water separator for removal of solid and floatable materials. Settleable solids are removed by gravity separation and are transferred to the oily sludge holding tank before being trucked offsite to a licensed disposal facility. Oil and floatables removed by the separator are routed to the "used oil" tank before being trucked offsite to a licensed disposal facility. Treated effluent is then discharged to the Delaware River.

Yard Drainage Systems

DSNs 462A, 463A, and 464 represent the effluent from the yard drainage systems. The drainage systems consist of the North Yard Storm Drain, the South Yard Storm Drain, and the Perimeter Storm Drain.

The North Yard drain system consists of site drainage from the facility parking lots, Material Center roof drain, loading ramp catch basins and underdrain sump, Auxiliary Boiler roof drain, Fire Water Pump House, No. 2 Reactor Building roof drain and stormwater runoff from other miscellaneous sources. The South Yard drain system consists of site drainage from the Security Center roof drain and parking lot, Administrative Building roof drain, Auxiliary Boiler roof drain, Turbine Building roof drain, service water valve pit dewatering sump, Reactor Building roof drain, and Chlorine Structure drains. The Perimeter storm drain system consists of site drainage and runoff from the Access Road area, Administration Building roof drains and parking lots, Combo Shop roof drains, catch basins in undeveloped portions of the site, groundwater infiltration, and marsh areas adjacent to the Hope Creek site.

Manholes are provided along the length of the yard drainage systems to facilitate maintenance and provide a point of collection if a hazardous substance inadvertently enters the system due to a spill. Absorbent, oleophilic booms are available (See Part III, Spill/Discharge Response Plan) for insertion into the manhole downstream of a spill to preclude any release to the waters of the State. No hazardous substance storage or process area drains are automatically directed to the yard drainage system. Since the system carries stormwater, no treatment is required. The stormwater is discharged directly to the Delaware River.

Sewage Treatment System

DSN 462B is the effluent from the onsite Domestic Sewage Treatment Plant. The Sewage Treatment Plant treats sanitary wastewater collected from the Salem and Hope Creek Generating Stations. Septage waste generated at unserviced buildings onsite is also transported to the Sewage Treatment Plant for treatment. Collected wastewaters receive secondary treatment from a single channel oxidation ditch which oxidizes the organic constituents of the influent wastewater. Solids are then removed in two clarifiers with a portion of the sludge recycled back to the oxidation ditch. Clarifier effluent can then be polished in sand filters for removal of any fine solids. Final effluent is chlorinated prior to discharge to the Delaware River. An inadvertent release of a hazardous substance to the influent of the Sewage Treatment Plant would be rapidly observed due to the effect on the sensitive biological processes and would be prevented from discharge. Small intrusions of a hazardous material can be treated without significant impact. Discharge of wastewater and removal of sludge from the system are conducted in accordance with the requirements of the NJDEP.

Excess sludges collected in the clarification process are stored temporarily in an aerated sludge holding tank before final disposal at an offsite licensed treatment or disposal facility.

2.4.2.4 Spills Within the Power Plant Building

Numerous storage tanks, process vessels, and other equipment that contain petroleum and hazardous liquids are located in the Power Plant Buildings. The storage tanks are contained within concrete dikes or are surrounded by concrete curbing; however, failure of associated piping or of process vessels could result in a spill to a diversion or a building drain sump. Large spills could travel from a higher to a lower floor elevation and ultimately to the building basement. The basement area flood sumps are normally isolated. Normally operated sumps discharge to the facility oil/water separators. Appropriate facility personnel or cleanup contractors will be summoned to cleanup any spill before the material can escape to the environment. If the material reaches the diversion drain, it will flow to an applicable treatment system where it can be isolated in a tank, sump or basin until it is removed.

2.5 PROCESS AREAS FOR HAZARDOUS SUBSTANCES

(NJAC 7:1E-2.2(a), 2.5, 2.6, 4.2(c)6, and 4.2(c)7; 40 CFR 112.7(c); 40 CFR 112, Appendix F, Sections 1.4.1, 1.6.2 and 1.7.3)

2.5.1 General

Salem and Hope Creek Generating Stations store and use several hazardous substances in various amounts and areas. These substances include sodium hypochlorite, sulfuric acid, ammonium hydroxide, hydrazine, sodium hydroxide, ammonium bisulfite, and fuel and lubricating oils. Ammonium bisulfite is used at Hope Creek only. Tables II-1A, 1B, and 1C list the process areas for these hazardous substances and describe the secondary containment designated for these areas. Process areas are normally contained within buildings or containment structures. Appropriate absorbent materials are maintained to facilitate cleanup of liquids spilled during normal operations. These process areas are shown on the DPRP Equipment Inventory Map and described in this Section.

The process areas described in this Section contain numerous vessels, machine equipment, and process tanks which contain, use, or store small amounts of chemicals and petroleum products. All items located in process areas have various combinations of secondary containment or curbing which drain to an appropriate treatment system. A variety of small equipment and system components in the process areas (pumps, valves, OCBs, motors, etc.) contain or use oil and, due to their number, are not shown individually either on the DPRP Equipment Inventory Map or on the Table II-1 series.

A brief description of the Salem and Hope Creek process areas follows. Major storage tanks used for bulk storage of chemicals and lube oil may also be located in these process areas. A discussion of the storage tanks, their contents, and their associated containment is presented in Section 2.1.

2.5.2 Salem Generating Station

2.5.2.1 Turbine and Auxiliary Buildings

The Turbine Building contains most of the steam electric generating equipment and the materials associated with the steam generator process. There are two chemical process areas within the Turbine Building, the feedwater chemical process area and the ultra-pure water demineralization plant. The building also contains numerous petroleum-based products used for lubrication of rotating machinery and hydraulic controls. Building drains located within the chemical processing and handling areas of the Turbine Building are directed to the chemical waste tank collection system. This system conveys the spilled material to a chemical waste tank which feeds to the NRLWDS for treatment.

The feedwater chemical process area consists of the ammonium hydroxide and hydrazine systems. Dilute ammonia and hydrazine solutions are pumped to the condensate header and subsequently to the steam generators. The pumps are contained in a curbed area which is routed to the chemical waste tank.

The demineralization plant processes fresh and recycled water into ultra-pure water for onsite use. Sulfuric acid and sodium hydroxide (caustic) are used in regenerating the cation and anion exchange media. The demineralization plant is located at 88-foot and 100-foot elevations in the southwest corner of the Turbine Building on the Unit 1 side. All drains in this area are routed to the No. 15 turbine sump which is lined with a chemically inert material and the sump pump is constructed of a chemical resistant polymer. The sump pump transfers all wastes to the chemical waste tank for processing in the NRLWDS. Any large spill in the area would be contained and transported offsite to a licensed treatment facility. If a leak is detected during regeneration or handling of the chemicals, the spill is washed to the No. 15 turbine sump. Personal safety equipment is provided in the area of the demineralization plant.

The Turbine Building contains numerous process areas for petroleum-based products such as lubricating oils, electro-hydraulic control oils, and greases. Lubricating oil process equipment, such as filters and centrifuges, have drip trays beneath the equipment which would contain any spillage or leakage and any collected oils are pumped to a collection drum or absorbed. Equipment which has a lubricating oil reservoir or sump, is surrounded by a curbed dike or drip tray to contain any spillage or leakage. Any escaped oils are routed through the Turbine Building equipment and floor drainage system to controlled sumps (except No. 15 turbine sump which is dedicated to chemical wastes). These sumps discharge through NJPDES permitted outfalls via the No. 1 and No. 2 oil/water skimmers (Location Nos. S68, S69) and the oil/water separator system (Location Nos. S68, S69, S137) which remove any residual oil prior to discharge. A major spill in the Turbine Building may be removed by pump or vacuum truck to a licensed treatment facility.

The Auxiliary Building is primarily a radiologically controlled area; therefore, all drainage in this building is contained in and processed through the radioactive waste systems. These systems are regulated by the Nuclear Regulatory Commission and are designed, installed, and maintained in accordance with the 10 CFR requirements.

2.5.2.2 NRLWDS Building

The Non-Radioactive Liquid Waste Disposal System (NRLWDS) is an industrial wastewater treatment system consisting of equalization, neutralization, precipitation and filtration processes and associated equipment. Except for the equalization basin and clarifiers, the equipment is located within the NRLWDS Building. Neutralization processes and chemical handling are conducted within the buildings. All equipment drains, chemical process area drains, and component leakage are directed to the building sumps. These sumps transfer any spillage, leakage, or normal drainage to the influent of the NRLWDS for treatment and processing prior to discharge. The NRLWDS effluent is a NJPDES permitted outfall designated as DSN 48C and is discussed in Section 2.4.2.

The outdoor tanks consist of two large capacity clarifiers of 440,000-gallon capacity each (Location Nos. S2, S3) and a 240,000-gallon equalization basin (Location No. S1). These tanks process a regenerated waste stream which contains acid/caustic wastes, ammonia, hydrazine and metal ions. These tanks are inspected daily for leaks and are managed under the Housekeeping Program as detailed in Section 2.10.

2.5.2.3 Chlorination Facilities

The chlorination facilities are located on the north end of the Circulating Water Intake Structure. The facility contains the pumps, controls, and valving for the injection of sodium hypochlorite to the cooling water systems. The equipment is contained in a building which has a sodium hypochlorite resistant floor. The equipment and floor drains are directed to the intake bays of the circulating water system for assimilation by the 2.2 million gallon per minute flow rate. Any sodium hypochlorite spill will be directed through the floor drains to the influent of the circulating water system, assimilated in the circulating water system, and discharged in accordance with the NJPDES Permit. A hose is used to wash small quantities of liquids to the drain.

2.5.2.4 Condensate Polisher Systems

The Condensate Polisher Systems for Units 1 and 2 are located in separate buildings which contain the operating systems, the chemical handling facilities, and the wastewater collection systems.

Each Condensate Polisher System has three concrete wastewater "flow-through" process tanks located under the Condensate Polisher Buildings to contain the wastewater from demineralizer regenerations. Segregation of this wastewater based on conductivity allows for specific treatment of the high conductivity wastewater and recycling of the low conductivity wastewater.

Each Condensate Polishing System has one high conductivity waste tank (Location Nos. S11, S14) with a 35,500-gallon capacity. These wastewaters may be hazardous based on corrosivity and depending upon the specific regeneration cycle step in progress since acidic wastes and caustic wastes are introduced at different times. These wastes are transferred to the NRLWDS Treatment System by pumps which operate automatically on level controllers or manually as needed.

Each Condensate Polishing System has one low conductivity waste tank with a 62,000-gallon capacity (Location Nos. S10, S13) and receives rinsewater from the regeneration process. These wastewaters may be filtered and directed to the inlet of the demineralizer for processing into ultra-pure water for onsite use or to the NRLWDS.

Each Condensate Polishing System has one rupture disc waste tank, normally empty, with a capacity of 3,500 gallons (Location Nos. S12, S15). The rupture disc waste tank is located between the high conductivity and the low conductivity waste tanks and automatically overflows to the high conductivity waste tank. This tank receives wastewater from the regeneration cycle if the pressure increases above 75 psig and a rupture disc relieves the pressure.

Sulfuric acid and sodium hydroxide (caustic) are used to regenerate the condensate polisher demineralizers. The concentrated acid and caustic handling and distribution systems within the Condensate Polisher Buildings are isolated with transparent spray shields to localize any leakage of concentrated chemicals. Equipment and floor drains are all routed to the high conductivity waste tank within the buildings which discharge to the chemical waste tank for final treatment in the NRLWDS. Leaks or spills which occur during regeneration are directed by the floor drain to the high conductivity waste tank.

2.5.2.5 Auxiliary Boiler Building

The auxiliary boilers use No. 2 fuel oil and provide steam and localized heating for house heating loads. The associated filtration and handling equipment is contained within the Auxiliary Boiler Building. Major components such as filters have installed drip trays beneath them to collect any spillage. The fuel injectors and fittings, when disconnected for maintenance, utilize portable collection containers to prevent leakage or drainage from reaching the floor drains during planned evolutions. The portable containers are emptied into larger drums for disposal at a licensed treatment facility. Spills which reach the floor drains are directed to the No. 3 oil/water skimmer where any residual oil is removed prior to treatment in the NRLWDS and discharged through the NJPDES permitted outfall. All equipment, floor, and building drains from the Auxiliary Boiler Building are directed to the No. 3 oil/water skimmer (Location No. S70). Spills are normally cleaned up using absorbent materials which are stored inside the Auxiliary Boiler Building.

Hydrazine in 30-gallon drums is used for chemical control of the auxiliary boiler feedwater system. Leakage or spillage from one of these small containers would be routed via the floor drain system to the oil/water skimmer prior to discharge in accordance with the NJPDES permit.

2.5.2.6 Fire Pump and Fresh Water Building

The Fire Pump and Fresh Water Building is located north of the Turbine Building and contains the diesel-driven fire pumps and the fresh water distribution equipment. The fire pump diesel engines use No. 2 fuel oil. Various rotating equipment in the building use petroleum-based products for lubrication. The fire pump diesel engines are surrounded by a curbed containment to collect any spillage which can be removed or absorbed for disposal. Spills which occur from piping associated with these engines are directed to the floor drain system. The floor drain system is directed to the No. 3 oil/water skimmer for oil removal and transfer to the NRLWDS for treatment prior to discharge through the NJPDES permitted outfall.

2.5.3 Hope Creek Generating Station

2.5.3.1 Turbine and Auxiliary Buildings

The Hope Creek Turbine and Auxiliary Buildings are within a single structure referred to as the Power Block. These areas contain the steam electric power generation equipment and the associated components. Three process areas for hazardous substances are discussed separately, the demineralization plant, the diesel generator area, and the petroleum-based lubricants throughout the buildings.

The demineralization plant is located on both the 77-foot and 54-foot elevations of the Turbine Building. Sulfuric acid is used in the regeneration of the demineralizer cation resin, and sodium hydroxide (caustic) is used in the regeneration of the anion resin. The pumps, valves, and piping associated with the concentrated chemical handling are located within a curbed area adjacent to the storage tanks. The curbed area drains to the high conductivity radioactive waste system. Any spills outside the curbed areas are directed to the radioactive liquid floor drain processing and treatment system. Non-hazardous regenerant wastes from this system are conveyed via pipeline to the NRLWDS at the Salem Generating Station.

Diesel engines associated with the emergency diesel generators on the 102-foot elevation of the diesel control section of the Power Block use No. 2 fuel oil. The area under the diesel fuel oil filters is surrounded by a drip tray which is cleaned by absorbing any spillage. Spills or leaks from the associated piping, valves, or other components are routed through the floor drain system, which is normally isolated, to the NJPDES LVOW Treatment System for proper treatment prior to discharge through the NJPDES permitted outfall.

All drains located within the Turbine and Auxiliary Buildings that service areas in which hazardous substances are used are connected to one of two collection/treatment systems. Oily wastes drain to the oily radioactive waste treatment system. These wastes come from areas where rotating equipment and hydraulic control systems are located. All equipment and floor drains which could, but are not expected to, contain a radioactively contaminated hazardous substance, primarily lubricating oils, are routed through the radwaste floor drain treatment system. Small spills can be cleaned up using absorbent materials.

2.5.3.2 Cooling Tower Chemical Control Buildings

In support of the cooling tower and associated processes, sodium hydroxide, sodium hypochlorite and ammonium bisulfite are presently utilized. Fresh water is provided at the location of the associated storage tanks and tank truck unloading areas for rinsing small spills, for housekeeping, and for safety purposes.

The sodium hydroxide pumps, valves, and control mechanisms are located in a curbed section of the Cooling Tower Chemical Control Building. The curbed, concrete floor directs all spills through a valved drain line to the NJPDES LVOW Treatment System. All components of the system are constructed of chemically resistant materials to prevent failure due to chemical attack.

The sodium hypochlorite injection system is contained adjacent to the sodium hydroxide system in the Cooling Tower Chemical Control Building in a separate curbed area. A dividing wall separates the operation of the two chemical systems. All sodium hypochlorite pumps, valves and components are constructed of materials resistant to chemical attack from sodium hypochlorite to prevent failure due to corrosion. The curbed, concrete floor directs all spills through a valved drain line to the NJPDES LVOW Treatment System.

The Betz PEG 01 dispersant pumps, valves, and control equipment are located in a protective structure within the storage tank containment dike, though not currently in use.

Ammonium bisulfite, a dechlorinating agent, is added to the cooling tower blowdown line west of the cooling tower. The associated pumps, valves and control equipment are located in the Dechlorination Building, a separate structure dedicated to the addition of this chemical. The floor drains from the Dechlorination Building are directed to the cooling tower blowdown at approximately the same location as the chemical is added. The components of the system are constructed of materials resistant to chemical attack from the ammonium bisulfite.

2.5.3.3 Service Water Chlorination Building

The Service Water Chlorination Building is located west of the sodium hypochlorite tanks. The building contains the pumps, valves, piping and components for metering the distribution of sodium hypochlorite into the service water system. The building contains a curbed, concrete floor with a floor drain which directs all spillage to the sodium hypochlorite tank dike which is sampled for discharge in accordance with the NJPDES permit or trucked offsite for disposal at a licensed facility. Components and equipment are constructed of materials resistant to sodium hypochlorite to prevent corrosive failure.

2.5.3.4 Auxiliary Boiler Building

The auxiliary boiler chemical treatment system includes ammonia and hydrazine addition. The associated pumps and valves are located within the same containment dike as the storage tanks (Location Nos. H9 and H23). Any spillage from this process equipment are routed through the drain in the dike to the NJPDES LVOW Treatment System.

Boilers in the Auxiliary Boiler Building burn No. 2 fuel oil. This fuel is filtered by a unit housed in the building which has a separate drip tray located beneath the filter unit. All floor and equipment drains within the Auxiliary Boiler Building are routed to the NJPDES LVOW Treatment System for treatment prior to discharge through a NJPDES permitted outfall.

2.5.3.5 Fire Pump Building

A diesel engine in the Fire Pump House uses No. 2 fuel oil. Spills which occur from the piping associated with this engine are directed to the floor drains which route all flows to the NJPDES LVOW Treatment System for treatment prior to discharge through a NJPDES permitted outfall. Small spills are cleaned up with absorbent material.

2.6 IN-FACILITY PIPES FOR HAZARDOUS SUBSTANCES

(NJAC 7:1E-2.4 and 4.2(c)5; 40 CFR 112.8(d)(1), 112.8(d)(2), 112.8(d)(3) and 112.8(d)(5))

PSEG Nuclear LLC complies with the New Jersey Right-to-Know labeling requirements outlined in NJAC 8:59-5.2. The Right-to-Know law is designed to protect and inform facility employees, contract workers, and outside emergency responders from potential hazards associated with piping and equipment containing hazardous substances.

At PSEG Nuclear LLC, pipeline valves meeting one or more of the following criteria are labeled:

1. Valves located where a substance enters a pipeline such as a chemical fill or receiving line.

2. Valves, outlets, vents, drains, and sample connections, designed to allow the release of a substance from a pipeline at least once during a 24-hour period or in connection with repairs or maintenance at least once a month.

3. Valves, outlets, vents, and drains which control emissions or discharges of any solid, liquid, semi-solid, or gaseous waste material.

Bulk storage tanks are required to be painted in accordance with PSEG Nuclear LLC's color coding system. Any tank not currently in conformance with the color coding system will be corrected upon repainting. The color coding system assigns a specific color for each hazardous substance or system. The chemical name and chemical abstract service (CAS) number is stenciled or posted on each storage tank. Each chemical used at the facility is assigned a Chemical Item Classification Permit (CICP) number. The CICP classifies the chemical according to physical and health hazards and to specific usage classification, storage class, requirements, disposal, and shelf-life requirements. Chemical labeling and documentation requirements are established in Nuclear Administrative Procedure, NC.NA-AP.ZZ-0038(Q), NAP-38, Chemical Control Program, and Chemistry Administrative Procedure, NC.CH-AP.ZZ-0038(Q), CHAP-38, Chemical Control Process.

All associated fill or transfer lines are also painted with the applicable color scheme. The color scheme, standard for PSEG Nuclear LLC's Salem and Hope Creek Generating Stations, is described in PSEG Nuclear LLC Technical Standard, SC.DE-TS.ZZ-4605(Q), Coating System and Color Schedules, included in Volume 2, Appendix G. In addition, all vessels are labeled with National Fire Protection Association (NFPA) diamond-shaped placards which indicate relative health effects, flammability, reactivity, and special hazards.

Each in-facility pipe which carries hazardous substances has been marked as required by lettering, color banding, and/or with the CAS number to indicate the product transferred through it. This facilitates tracing of lines through the plant, identification of leaking lines, and identification of the lines for health and safety purposes.

Where practicable, the pipes carrying hazardous substances are left exposed to allow for easy inspection and repair. However, those pipes carrying fuel oil, and sodium hypochlorite are not left exposed.

Other measures are used to help minimize leakage from in-facility piping. Pipe supports are designed so as to minimize abrasion and corrosion and allow for expansion and contraction (NJAC 7:1E-2.4(f) and 40 CFR 112.8(d)(3)). Metal pipe supports are mainly used, although fiberglass reinforced plastic and polyvinyl chloride (PVC) pipe supports are used where corrosivity is a concern.

NJAC 7:1E-2.4(c) states that existing buried pipes shall be equipped with product sensitive leak detection devices, if such devices are state-of-the-art technology. Product sensitive leak detection devices for the fuel oil and sodium hypochlorite piping are not practicable for several reasons. First, regarding fuel oil detection, casual oil from road drainage, motor vehicles, asphalt leaching, and other sources could lead to false readings of the detection devices. In addition, the underlying dredge spoils sediment upon which this facility is constructed contain varying levels of petroleum contamination from historic oil discharges from ships dating back to the late 1800's. This contamination prevents the use of product sensitive leak detection for petroleum products. Second, regarding sodium hypochlorite detection, the brackish groundwater is not far below grade. This could lead to dilution of any leaks, or contamination of the detection devices. Also, sodium hypochlorite which leaks into the soil would soon be reduced to chloride. The brackish character of the Delaware River next to both plants means the soil under the plant contains a high level of chloride. Thus, any attempts to measure chloride levels in the soil near the pipes would prove useless and attempts to measure chlorine levels in the soil would also be futile since chlorine reduction is so rapid. Where practical, sodium hypochlorite piping has been elevated to highly visible aboveground locations where leaks are readily detected.

Where state-of-the-art technology does not exist, PSEG will follow the inspection program for buried pipes in API 570 or some other industry standard acceptable to the Department. See Part II, Table II-4A, PSEG Nuclear LLC Completed Underground Piping Testing Matrix, and Table II-4B, PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule.

Whenever possible, new pipe installations will be aboveground. Any new buried piping installations or replacement at both Salem and Hope Creek Generating Stations will be protectively wrapped and coated, cathodically protected, or treated in some other way to protect them against corrosion; and in addition will be double-walled and equipped with leak detection devices. When existing buried piping containing DPCC regulated materials is exposed for any reason, it will be examined for deterioration and repaired if deterioration is found. Piping requiring substantial reconstruction or replacement in accordance with NJAC 7:1E-2.4 will be upgraded to the standards applicable to new buried piping.

As required by and pursuant to NJAC 7:1E-2.4(e) and 40 CFR 112.8(d)(2), pipes removed from service shall either be capped or blank-flanged and marked as to origin or physically removed.

When elevated across roadways, pipes containing hazardous substances shall be equipped with warning signs or other means of identification to minimize the chance of vehicular collision in accordance with NJAC 7:1E-2.4(g) and 40 CFR 112.8(d)(5). No such elevated pipelines exist at the facility.

2.7 MARINE TRANSFER AREA LIGHTING

(NJAC 7:1E-2.7, 2.8 and 4.2(c)8)

PSEG Nuclear LLC has barge slips east of the Salem main fuel oil storage tank and south of the Hope Creek main fuel oil storage tank. The two barge slips have never been used for transfer of liquid substances, including petroleum products, in the history of the plant, nor are there currently any plans to use them for this purpose. Should any plans for such use of the barge slips develop in the future, PSEG Nuclear LLC will upgrade these in compliance with applicable NJDEP, USEPA and USCG regulations.

2.8 FLOOD HAZARD AREAS

(NJAC 7:1E-2.9 and 4.2(c)9)

NJAC 7:1E-2.9 requires flood protection for all hazardous substances stored within the 100-year flood hazard area. Plant grades at both Salem and Hope Creek Generating Stations are above the 100-year flood hazard area. Hazardous substances stored at the facility are not within any known area to be subject to a high probability of flooding, and are not adjacent to any other known 100-year flood hazard area.

According to the U.S. Coast Guard data, the 100-year flood level of the Delaware River at New Castle, Delaware is 9.6-feet above mean sea level. The Technical Specifications for the Salem Generating Station, Unit No. 1, state that flood protection shall be provided for all safety related systems when the water level of the Delaware River exceeds 10.5-feet above mean sea level. The plant grade is 11-feet above mean sea level. It can therefore be concluded that the hazardous substances stored onsite for Salem Generating Station are at least 1.4-feet above the 100-year flood hazard area.

The Technical Specifications for the Hope Creek Generating Station also state that flood protection shall be provided for all safety related systems. The plant grade is 12.5 feet above mean sea level at Hope Creek. Therefore, hazardous substances stored onsite for Hope Creek Generating Station are at least 2.9 feet above the 100-year flood hazard area.

2.9 VISUAL INSPECTIONS AND MONITORING

(NJAC 7:1E-2.10 and 4.2(c)10; 40 CFR 112.7(e), and 112.8(c)(6); 40 CFR 112, Appendix F, Sections 1.6.1, 1.7.3, 1.8.1, 1.8.1.1 and 1.8.1.3)

Equipment and portions of the facility in service at PSEG Nuclear LLC using hazardous substances are visually inspected in accordance with standard operating procedures pursuant to NJAC 7:1E-2.14 to detect any leaks or discharges. Visual inspections are performed and documented at a minimum according to the following schedule, unless otherwise specified in this Section:

1. Prior to each marine transfer for adequacy, deterioration, leaks or discharges, all transfer area lighting, and all aboveground transfer valves, pumps, flanges, flexible hoselines and connections, unless they are not readily accessible, that are to be used in the transfer (See Section 2.7, Marine Transfer Area Lighting);

2. Once daily for integrity and leaks, all in-use secondary containment and diversion systems for aboveground storage tanks which are not impermeable;

3. Once daily or prior to each use, whichever is less frequent, for integrity, deterioration and leaks, loading or unloading areas, including flexible hoselines;

4. Once weekly for integrity and leaks, process areas and transformers;

5. Once monthly for integrity and leaks, impermeable storage areas, secondary containments, diversion systems, and aboveground piping;

6. Once monthly for integrity and leaks, all other storage areas and secondary containment or diversion systems, and all aboveground pipes; and

7. Once quarterly for integrity and leaks, all other aboveground valves, pumps, flanges, connections and equipment, and all security fences and locks.

Records are kept for all visual inspections. These records document that inspections were performed, any problems found, and the subsequent correction of such problems.

The facility employs good housekeeping and maintenance programs as described in Section 2.10 of this Part. Any leaks and discharges are likely to be detected by site personnel; therefore, a groundwater monitoring program is not necessary.

2.9.1 Salem and Hope Creek Main Fuel Oil Storage Tanks

Visual inspections of the tanks and their containment systems are performed daily to identify any leaks (See Section 2.10, Housekeeping and Maintenance). To further reduce the risk of an unnoticed leak escaping, the fuel level is recorded daily and upon receipt of a fuel oil delivery. Variations in the oil level that are unaccounted for are reported immediately to management for initiation of a follow-up investigation.

2.9.2 Other Tanks and Containers

Equipment, tanks, and containers located inside plant buildings are protected by the containment afforded by the buildings and by diversion to a waste treatment system. All storage tanks and equipment located outdoors have appropriate containment systems as described in Section 2.4, Secondary Containment/Diversion Systems. Contents escaping from these tanks would be identified during daily inspections (See Section 2.10, Housekeeping and Maintenance). Since the containment systems are impermeable, leaks and spills into the containment are prevented from reaching the lands or waters of the State. In general, leaks can be prevented from reaching the lands and navigable waters of the State by employing good housekeeping and maintenance procedures as described in Section 2.10.

2.9.3 Oil-Containing Electrical Equipment

Numerous transformers, OCBs, and switches are filled with dielectric fluid to provide cooling and electrical insulation. Oil-filled electrical equipment is inspected weekly or quarterly, as discussed in Section 2.4.1.6, for evidence of leaks. In addition, oil-filled electrical equipment containing PCBs is also inspected quarterly per 40 CFR 761. Written checklists are used for each inspection and are maintained at the Station.

2.9.4 Discharge Detection Systems

In accordance with NJAC 7:1E-5.5, any malfunction of a discharge detection, monitoring, or prevention device must be reported to the NJDEP. Procedures for notification and follow-up are described in Part III, Section 5, Notification to Authorities, of the Spill/Discharge Response Plan.

2.9.5 Pipeline Inspections

(40 CFR 112.8(d)(4))

Housekeeping checklists and procedural controls provide for regular inspections of pipelines in accordance with NJAC 7:1E-2.10. During these inspections, operators examine the general condition of pipelines, including flange joints, expansion joints, valve gland packing and bodies, catch pans, pipeline supports, valve position locking (if applicable), and metal surface conditions. Any piping leaks would further be identified by telltale indications in plant sumps and treatment systems.

PSEG Nuclear LLC will follow the visual inspection protocol for buried pipes in API 570 or some other industry standard acceptable to the Department. See Part II, Table II-4A, PSEG Nuclear LLC Completed Underground Piping Testing Matrix, and Table II-4B, PSEG Nuclear LLC Upcoming Underground Piping Testing Matrix and Schedule.

2.10 HOUSEKEEPING AND MAINTENANCE

(NJAC 7:1E-2.11 and 4.2(c)11; 40 CFR 112.8(b)(1), 112.8(c)(1), 112.8(c)(6), 112.8(c)(10) and 112.8(d)(4); 40 CFR 265.31 and 265.33; 40 CFR 112, Appendix F, Sections 1.7.3 and 1.8.1.3)

Hazardous substances and hazardous waste are kept in containers suitable for their storage or processing at all times except when being transferred between containers. Containers are compatible with the substances and waste stored therein and resistant to chemical attack by the substances and waste. Hazardous substances and waste are protected from the elements and the possibility of leakage.

Tanks, pipes, valves, glands, drums, or other equipment leaking hazardous substances would be promptly repaired, replaced or taken out of use following detection of a leak. A leak would be repaired at the earliest period in which either the process is not in operation or the particular unit is out of service, whichever occurs first. If an equipment leak cannot be promptly repaired, replaced or taken out of service due to a process, then a drip pan or other appropriate containment device would be utilized.

All leaks or discharges of hazardous substances are cleaned up promptly upon detection. Loose quantities of hazardous substances would not be allowed to persist on grounds, floors, walls or equipment, or any other places within the facility.

The facility keeps on hand, in convenient locations, adequate quantities of sorbent materials, chemical neutralizing agents or other materials as needed, sufficient to contain and cleanup small leaks or discharges by facility designated response personnel as may be expected to occur during day-to-day operations of the facility. Such cleanup materials are made available normally within 15 minutes of leak discovery via facility response team personnel.

The facility maintains an adequate supply of protective safety equipment, such as chemically resistant coveralls, boots, or gas masks, in convenient locations for use by facility personnel who are required to clean up leaked or discharged hazardous substances. The facility is in compliance with the regulations of the Federal Occupational Safety and Health Administration where protective safety equipment is required.

Secondary containments or diversion systems are maintained in good repair, free of cracks through which hazardous substances could be discharged.

2.10.1 Housekeeping

To minimize the potential for accidental spills, all petroleum-based materials, hazardous substances and hazardous wastes are maintained in containers (tanks, dumpsters, and drums) or equipment suitable for their storage, use or processing. Tables II-1A, 1B, and 1C identify the composition of containers used at the facility.

The Spill/Discharge Response Plan in Part III, and the Hazardous Waste Contingency Plan in Section 2.15, detail the procedures used for cleanup.

If an equipment leak is detected, the faulty equipment is promptly repaired, replaced, or taken out of service. In certain equipment, minor leaks are inevitable. The leaking material is captured and contained using drip pans, buckets, sorbent materials, or pads. These devices are used whenever spills or minor equipment leaks are suspected or likely.

Larger supplies of absorbent material and neutralizing chemicals are available from warehouse storerooms at the facility. The location and amount of these supplies available in storerooms are discussed in Part III. Protective safety equipment such as boots, gloves, and respirators are also available. Personnel conducting inspections are trained to identify spills and loose materials, whether contained or not, and report these occurrences to the Operations Superintendent (OS).

Housekeeping responsibilities also include inspection of eyewash stations and showers, posting of user instructions at these locations, and storage of hazardous materials and waste storage containers at designated locations.

Housekeeping responsibilities at the facility are divided by area as described in Nuclear Administrative Procedure, MA-AA-716-026, Station Housekeeping/Material Condition Program.

2.10.2 Inspections and Preventive Maintenance

(40 CFR 112.7(e); 40 CFR 112, Appendix F, Sections 1.6.1, 1.8.1 and 1.8.1.1)

A structural integrity inspection of the secondary containment structures for all storage tanks and areas, process facilities, and truck unloading areas is conducted at least once a year by the Nuclear Operations Department and the Nuclear Engineering Department. The inspection consists of physically examining all the sides and the base of each containment structure for cracks, settlement, spalling, deterioration, erosion, trash, debris, vegetative growth, or other potential problems. Each inspection is documented and maintained with the inspection records.

In addition to the above annual inspection program, routine housekeeping and equipment inspections are performed, which incidentally detect leaks, spills and equipment failure. This includes surveillance inspection and testing of level devices, testing of pumps to ensure proper operation, and a check of the age and condition of absorbents. Records of inspections are maintained on hard copy or electronically by personnel responsible for the equipment maintenance, testing and/or operations as appropriate.

Inspection findings are evaluated and corrective actions identified by a working group comprised of representatives from Nuclear Engineering, Nuclear Operations, Salem and Hope Creek Operations, and Chemical, Radwaste and Environmental Department. From this, corrective actions and a repair schedule is developed.

All transformers undergo detailed inspections at least quarterly. Results of the inspection are documented and maintained with the inspection records.

As a part of preventive maintenance, flexible hoses used to transfer petroleum-based materials and hazardous substances and their couplings are visually inspected by facility personnel prior to each use. Hoses for acid, caustic, ammonia, sodium hypochlorite, and fuel oil transfer are inspected before each transfer commences.

PSEG Nuclear LLC uses a computerized tracking system to ensure inspections, preventive maintenance and/or repairs and upgrades are performed as scheduled. This system, known as SAP (work management module), generates a computer work order that serves as a directive to personnel that inspections or preventive maintenance actions for selected equipment/systems are required.

In addition, a Corrective Action Program (CAP) within SAP provides for the identification of Corrective Maintenance (CM) and Condition Resolution (CR) Type Action Requests. The CAP assigns an Evaluation Manager and tracks tasks to completion as described in Nuclear Administrative Procedures, LS-AA-120, Issue Identification and Screening Process, and LS-AA-125, Corrective Action Program. Deficiencies and required upgrades identified during inspections, and those based on corporate commitments, are captured and their implementation monitored using the CAP.

Standard Operating Procedures (SOPs), as defined in Section 2.13, are used to ensure that all critical equipment and systems are tested/inspected as necessary. Inspections occurring less frequently (e.g., annual secondary containment structural) are initiated by SAP. Upon completion, all inspections are reviewed by a supervisor who notes the deficiencies and schedules the repair work.

Generally, preparation requirements during start-up or shut-down of process equipment will result in the inspection of process lines and in-facility pipes for leaks, routing of leaks to a diversion drain, and ensuring prompt cleanup and repair of any defective components or equipment.

2.11 TRAINING PROGRAM

(NJAC 7:1E-2.12 and 4.2(c)12; 40 CFR 112.7(f))

The training program is defined by Nuclear Administrative Procedure TQ-AA-10, Training System Development Process Description, which identifies responsibilities, content, scheduling, evaluation, and documentation of training for PSEG Nuclear LLC.

Pursuant to NJAC 7:1E-2.12(e), documentation of all training, evaluation and qualifying activities for each employee shall be kept at the facility and shall include the identification of the employee, his/her job title, subjects covered and training dates.

2.11.1 Site Access Training

Site Access Training and General Employee Training (GET) are conducted at the Processing Center located at the facility and at the Mannington Training Center located in Mannington, NJ. Full-time employees and contractors working onsite receive site access training and psychological screening prior to badging and the beginning of their work assignment. All badged personnel are also required to return to the Processing Center periodically for refresher training.

During site access training, personnel participate in a Hazardous Materials Training Course which provides a fundamental understanding of hazardous materials including petroleum products. This covers the Hazard Communication Standard, Chemical Control Program, the Hazardous Waste Management Program, and the Discharge Prevention and Response Program (which incorporates the FRP and the SPCC/DPCC/DCR Plans). Students learn to recognize hazardous substances, to read Material Safety Data Sheets (MSDS), and to determine material hazards. Several common onsite petroleum oils and hazardous substances are specifically covered as examples.

One lesson covers the Discharge Prevention, Containment, and Countermeasure (DPCC) regulation as it pertains to the employees at PSEG Nuclear LLC. Topics include the Scope of the Regulation, Corporate Responsibility, Individual Responsibility, and Spill Reporting.

2.11.2 Discharge/Emergency Response Training

(NJAC 7:1E-4.3(b)6; 40 CFR 112, Appendix F, Sections 1.2.5, 1.3(A)(5), 1.7.1 and 1.8.3)

Petroleum and hazardous material spill response is the responsibility of the Manager - Emergency Services. Fire Department personnel receive hazardous materials training at the technician level (64-80 hours) in accordance with 29 CFR 1910.120. This training is offered and certified by the New Jersey State Police. Each member must take and pass the State Police Exam and demonstrate field performance. The responders also complete a 24-hour Spill Prevention course that focuses primarily on river discharges.

Refresher training is conducted periodically on various site-specific topics. Onsite drills specific to hazardous chemicals are conducted semi-annually.

2.11.3 Nuclear Training Department (NTD)

To provide consistent training across PSEG Nuclear LLC, computer-based training has been implemented. This allows personnel to review training materials during off hours and during periodic requalification. Employee training is coordinated through the PSEG Nuclear LLC Nuclear Training Department (NTD). Training is implemented by PSEG Nuclear LLC trainers in accordance with the NTD's Implementing Procedures which satisfy the requirements of the Nuclear Regulatory Commission and the Institute of Nuclear Power Operations (INPO).

PSEG Nuclear LLC develops separate lesson materials specific to job tasks and written procedures. This ensures that trainees are provided discipline specific training focusing on specific aspects of procedures that apply to them. PSEG Nuclear LLC reviews appropriate procedure revisions to determine training impact. This helps to ensure regular program review and update.

The training program is in compliance with the following requirements of NJAC 7:1E-2.12, et. seq.:

2.12(a)	Written Training Program
2.12(b)1	Written Job Descriptions
2.12(b)2	Specified Time Periods
2.12(b)3	Procedures to Demonstrate Ability
2.12(c)1	General Orientation/Initial Training
2.12(c)2	Classroom Training and On-the-Job Training
2.12(c)3	Updated/New SOP Training
2.12(c)4	Refresher Training
2.12(d)	Trainer Qualifications
2.12(e)	Documentation of Training
2.12(f)	Procedures for Outside Contractors

2.11.4 Written Training Program

(NJAC 7:1E-2.12(a))

PSEG Nuclear LLC training programs are implemented in accordance with the Training, Qualification and Certification Procedure which describes the responsibilities, content, scheduling, evaluation and documentation of training for PSEG Nuclear LLC. Discipline-specific guidance is provided by the Nuclear Training Department (NTD) Training Procedures, and NTD Implementing Procedures. Each discipline maintains lesson materials for each course. NAP-14, NTD Training Procedures, NTD Implementing Procedures, and lesson materials satisfy the requirement for a written training program.

2.11.5 Written Job Descriptions

(NJAC 7:1E-2.12(b)1)

<u>**Discharge Emergency Response**</u>

Written job descriptions exist for Fire Department personnel in accordance with the requirements of NJAC 7:1E-2.12.

Nuclear Training

Each discipline has developed and maintains a job task analysis for each job position. The task lists identify those job tasks selected for training and qualification. Identified skills and knowledge include "duties and responsibilities relating to hazardous substances for each position, and training necessary to qualify for the position", meeting the requirements of NJAC 7:1E-2.12(b)1.

2.11.6 Specified Time Periods

(NJAC 7:1E-2.12(b)2)

NJAC 7:1E-2.12(b)2 requires specified time periods of in-house training for each position covering orientation, specific hazardous substances training and on-the-job training, trainee evaluation, final qualification, and periodic refresher training.

Approximate time periods are provided for modular training in each discipline's training procedure. There are no specified time periods for qualification; however, independent task performance is not permitted prior to task qualification. Individual training and qualification level is determined by the Department Manager's needs.

2.11.7 Procedures to Demonstrate Ability

(NJAC 7:1E-2.12(b)3)

Site Access

Examinations are administered following site access training. Successfully passing the examinations satisfies training requirements for site access.

Discharge Emergency Response

Each member of the Fire Department must take and pass the State Police exam for hazardous materials emergency response. Onsite drills are conducted semi-annually to test and/or demonstrate response capability. The requirements for each employee to qualify for a position in the Fire Department satisfies NJAC 7:1E-2.12(b)3.

Nuclear Training

Examinations are given to assess trainees' comprehension of classroom material. Skills are tested by observation of trainees' independent performance. Qualification is achieved only by successful independent performance.

2.11.8 General Orientation/Initial Training

(NJAC 7:1E-2.12(c)1)

Site Access Training satisfies NJAC 7:1E-2.12(c)1 for general orientation and initial training of new employees before assignment to hazardous substance operations. Training includes general site rules and practices, safety procedures and equipment, the Spill/Discharge Response Plan contained within the DPRP, and an overview of the DPCC regulations as it pertains to employees (i.e., regulatory scope, corporate responsibility, individual responsibility, spill reporting), and Environmentally Sensitive Areas (ESAs) identified in the DPRP.

2.11.9 Classroom Training

(NJAC 7:1E-2.12(c)2)

NJAC 7:1E-2.12(c)2 requires classroom training for newly assigned employees involved with hazardous substances. This training incorporates details from the SOPs, safety training specific to the hazardous substances, detailed review of the MSDS, safe-handling practices for the substance, the hazards of the operation and emergency procedures for fires, leaks, and discharges. As a nuclear facility, all training implicitly includes management of radionuclides and radiation, and as a result, these are not covered in any separate specific training section.

Discharge Emergency Response

The hazardous materials discharge emergency response courses cover the above topics in detail. The Fire Department responders are trained in hazardous substance incident response and in implementation of the ESA Protection Plan.

Chemistry

Hazardous chemical training is accomplished through the Chemical Right-to-Know training courses covered in NAP-38, Chemical Control Program, and CHAP-38, Chemical Control Process. It covers all topics required under NJAC 7:1E-2.12(c)2 for the hazardous substances handled by the Chemistry Group.

There are several hundred hazardous chemicals handled by the Chemistry Group. To cover each individual MSDS in detail would be difficult. Therefore, for Chemistry Group training, only the MSDSs for the most hazardous substances are covered in detail. The trainees are then taught to recognize hazards based on the type of chemical (i.e., oxidizers, corrosives, flammables, reactives, etc.), how to read MSDSs and how to identify hazards. The chemists have a basic understanding of chemicals and understand how to identify hazards of various groups of chemicals. In addition, all chemical products must be authorized prior to purchase and labeled in accordance with the facility Chemical Item Classification Permit (CICP) Program (See Section 2.6, this Part).

The Chemistry Training Group has developed lesson materials to cover LRAP-37, Environmental Control Processes, which covers various environmental regulations including DPCC. This provides Chemistry Group trainees with a fundamental understanding of the environmental regulations.

Maintenance

The Maintenance Group handles a variety of hazardous substances including lubricating oils, petroleum fuels, solvents, and cleaning agents. They are also subject to exposure when removing a piece of equipment from chemical service, and when they remove, replace, and dispose of spent oils and greases.

Hazardous substance training given to the maintenance workers is the Hazardous Materials Training during the annual Site Access/General Employee Training program.

A general spill prevention course provides specific DPRP training for the Maintenance Group.

Salem and Hope Creek Controls

The Salem and Hope Creek Controls groups have similar training programs.

The Controls personnel work with a variety of hazardous substances such as nuclear detectors, mercury switches, and oil circuit breakers and they are subject to exposure when removing a piece of equipment from chemical service.

Hazardous substance training given to the maintenance workers is the Hazardous Materials Training during the annual Site Access/General Employee Training program.

A general spill prevention course provides specific hazardous materials training for the Controls Group.

Salem and Hope Creek Operations

Hazardous chemical training for the Salem and Hope Creek Operators is accomplished through the NAP-38, Chemical Control Program, and CHAP-38, Chemical Control Process, training courses. In addition, general courses on miscellaneous administrative procedures are provided to cover the basics of LRAP-37, Environmental Control Processes.

A general spill prevention course provides specific hazardous materials training for the Operations Groups.

2.11.10 On-the-Job Training

(NJAC 7:1E-2.12(c)2)

Current employee qualification requirements for each discipline satisfy NJAC 7:1E-2.12(c)2. Qualification is achieved by observation of satisfactory independent performance. Additionally, all disciplines provide various forms of on-the-job (in-plant) training.

2.11.11 New SOP Training

(NJAC 7:1E-2.12(c)3)

Current employee qualification requirements for each discipline satisfy NJAC 7:1E-2.12(c)2. Qualification is achieved by observation of satisfactory independent performance. Additionally, all disciplines provide various forms of on-the-job (in-plant) training, including training regarding new procedure and SOPs.

2.11.12 Refresher Training

(NJAC 7:1E-2.12(c)4)

Discharge Emergency Response

Periodic refresher courses cover specific chemicals present at the site and specific response to spills of these substances. Drills, which are conducted semi-annually, provide effective refresher training for spill responders.

Nuclear Training

Disciplines have an annual refresher (continuing) training program. The time periods and content for each discipline satisfy the requirement in NJAC 7:1E-2.12(c)4. Procedure revisions are reviewed for impact on training and necessary changes are made to the refresher training program.

2.11.13 Trainer Qualifications

(NJAC 7:1E-2.12(d))

Discharge Emergency Response

Hazardous materials discharge emergency response courses are taught by fully-qualified New Jersey State Police Instructors.

Nuclear Training

All trainers in the Nuclear Training Department are required to successfully complete a train-the-trainer course facilitated by the Instructional Technology Group. Refresher (continuing) training is provided to all trainers.

Additionally, Instructional Technology tracks the performance of the trainers, individually and as a group. Monthly reports are issued to communicate the status of various aspects of trainers and training programs. Frequent feedback is obtained from course participants, station management, and NTD management. Qualification information is also maintained for contract trainers.

2.11.14 Documentation of Training

(NJAC 7:1E-2.12(e); 40 CFR 112, Appendix F, Section 1.8.3)

Documentation of all training and qualification activities is submitted to the NTD Records Facility for update of computer tracking systems and for archiving. Fire Department Spill Management Team (SMT) personnel training records and drill logs are maintained by the Fire Department in hard copy format. The documentation requirements for all Site Access, Emergency Response/Maintenance Services, and Nuclear Training courses exceed the requirements of NJAC 7:1E-2.12(e).

Pursuant to NJAC 7:1E-2.12(e), documentation of all training, evaluation and qualifying activities for each employee shall be kept at the facility and shall include the identification of the employee, his/her job title, subjects covered and training dates.

2.11.15 Procedures for Outside Contractors

(NJAC 7:1E-2.12(f))

Contractors working onsite with unescorted access, must complete initial site access training, which includes hazardous materials and spill prevention training. Initial site access training for contractors satisfies the requirement in NJAC 7:1E-2.12(f) for procedures to ensure that contractors are trained. Employees of Oil Spill Removal Organizations (OSROs) are trained under their own individual training programs. The OSRO training programs and training records are available for inspection upon request.

Truck drivers who deliver petroleum and other hazardous substances to the site do not receive site access training as the deliveries are not done by the same driver each time. While the drivers perform the transfer of hazardous substances from the truck to the stationary tanks, a badged and trained plant operator oversees the entire process. The operator is required to verify the valve line-up to ensure that the process is being conducted correctly. In addition, the truck drivers are required to be trained by their respective employers in handling hazardous substances in accordance with Department of Transportation (DOT) regulations.

2.12 DESCRIPTION OF SECURITY

(NJAC 7:1E-2.13 and 4.2(c)13; 40 CFR 112.7(g); 40 CFR 112, Appendix F, Section 1.10)

PSEG Nuclear LLC is adequately illuminated so that personnel on the premises can detect intruders, leaks or discharges between dusk and dawn.

The security system consists of:

1. Fencing adequate to prevent unauthorized entry of all portions or areas within which hazardous substances are stored, processed, transferred or used, with entrance gates locked and/or guarded when the facility is unattended, and either locked, guarded or under observation by personnel at all other times; and

2. For aboveground storage tanks, all of the following:

a. Valves which will permit escape of a tank's or other container's contents to the surface securely locked (i.e., wire tie, lock wire, etc.) in the closed position when not in use;

b. Starter controls on all pumps locked in the "off" position when the pumps are not in use; and

c. The open ends of all pipes securely capped or blank-flanged when not in use for an extended time.

In addition, Salem and Hope Creek Generating Stations have physical protection systems as required by 10 CFR 73, Physical Protection of Plants and Materials. The following security system components contribute significantly to the security effectiveness at the facility. They are:

- Highly trained security force;
- State-of-the-Art security hardware system;
- Strictly enforced access control measures for personnel and materials;
- Effective, long-standing relationship with several levels of law enforcement;
- Testing/maintenance programs to ensure operability within design framework;
- Ongoing performance-based training program; and
- 24-hour monitoring of security cameras.

The PSEG Nuclear LLC facility installed electro-hydraulic controllers at each of the three security gates onsite in 1996. Each controller contains five (5) gallons of hydraulic fluid.

Security awareness is maintained via General Employee Training (GET), Nuclear Department Description Documents and Department Procedures. Additionally, the security program interacts with other programs such as: Medical Department - Fitness for Duty, In-processing -Access Authorization and Training. In addition, all non-badged individuals must be accompanied by badged personnel. All non-PSEG vehicles and drivers are escorted by security officers at all times.

2.13 STANDARD OPERATING PROCEDURES (SOPs)

(NJAC 7:1E-2.14 and 4.2(c)14; 40 CFR 112.7(e); 40 CFR 265.31 and 265.33; 40 CFR 112, Appendix F, Section 1.8.1)

PSEG Nuclear LLC's Standard Operating Procedures (SOPs) are written in English in a manner understandable by employees. A copy of the SOPs and a copy of Material Safety Data Sheets (MSDS) or Fact Sheets for each hazardous substance used or stored at the facility are readily available to all employees through the Document Control and Record Management System (DCRMS). In addition, a current index of the SOPs with corresponding latest issue dates is maintained and readily available.

PSEG Nuclear LLC maintains written procedures for all phases of facility operations, maintenance, and testing involving hazardous substances. They are prepared, reviewed, and approved in accordance with Nuclear Administrative Procedure, AD-AA-10, Nuclear Procedure System, which implements the following licensing requirements and technical standards:

- DPCC Regulatory requirements for Standard Operating Procedures (SOPs) found in NJAC 7:1E-2.14;
- Facility Nuclear Technical Specifications;
- United States Nuclear Regulatory Commission (USNRC) Regulatory Guide 1.33, Revision 2, Quality Assurance Program Requirements (Operation);
- ANSI N18.7-1976/ANS 3.2, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants;
- ANSI/ANS 3.2-1982, Section 5.3 (for Hope Creek Procedures only); and
- PSEG Nuclear LLC Technical Standard NC.DE-TS.ZZ-5444(Q), Requirements for Compliance with Discharge Prevention, Containment, and Countermeasure (DPCC) Regulations, (Volume 2, Appendix O).

The complete list of SOPs, written pursuant to NJAC 7:1E-2.14(d), is documented in the facility DCRMS and is maintained and controlled by the Document Management Group (DMG) in accordance with Nuclear Administrative Procedure, RM-AA-102, Control of Documents. All SOPs are available through DCRMS, available on all PSEG Nuclear LLC network computers.

SOPs are reviewed and revised in accordance with NAP-1, Nuclear Procedure System, when changes (e.g., system design changes, equipment modifications, etc.) are necessary or desirable. Following abnormal occurrences, the appropriate procedures receive a review to ascertain whether the procedure may have contributed to the incident or was inadequate in its capacity to mitigate the consequences. Changes to SOPs must be incorporated prior to the changes being implemented.

A catalog list of selected SOPs for the facility is provided in Appendix H, SOP Catalog List, in compliance with NJAC 7:1E-2.14. This catalog list identifies the SOPs satisfying NJAC 7:1E-2.14. These SOPs are periodically reviewed, and if required, revised and approved in accordance with established procedures and schedules. All SOPS and operating manuals/instructions are readily available to all operators and regulatory agency inspectors. All SOPs are individually evaluated during the revision and approval process for incorporation into and impact on the ongoing training program.

2.14 DESCRIPTION OF RECORDKEEPING SYSTEM

(NJAC 7:1E-2.15, and 4.2(c)15; 40 CFR 112.7(e), 112.8(c)(3) and 112.8(c)(6); 40 CFR 112, Appendix F, Section 1.8.1)

PSEG Nuclear LLC maintains records of employee training and drills for discharge prevention and hazardous substance inventories for a period of three (3) years.

In addition, records of confirmation reports on discharges pursuant to NJAC 7:1E-5.8(c), inspection, major maintenance, and major repair of all structures other than aboveground storage tanks, equipment, and detection or monitoring, prevention or safety devices related to discharge prevention and response are maintained for ten (10) years or the lifetime of the structure, equipment or device, whichever is shorter.

For aboveground storage tanks, the records of integrity testing, inspection, major maintenance and major repair are maintained for the lifetime of the tank.

All records are available for inspection upon the request of the NJDEP or local agencies. Records are retained on microfilm or microfiche or kept in computerized form with adequate backup.

The facility will maintain and make available for NJDEP review, at either the facility or the NJDEP's offices at the discretion of the NJDEP, the following updated documentation including a catalog list of all such documents showing title, identification number and date of issue:

1. Facility inventory of hazardous substances, as defined in NJAC 7:1E-1.6;

2. Updated process flow and piping and instrumentation diagrams;

3. Standard Operating Procedures;

4. Facility Emergency Response Plan;

5. Job classifications and job descriptions; and

6. Housekeeping and maintenance program procedures and records.

Furthermore, PSEG Nuclear LLC uses SAP documentation and inspection checklists that address discharge emergency response equipment, containers, and containment structure and which serve as records. In addition, SAP is a computer-based system, thus, summary information of most tasks being retrievable from any mainframe computer terminal. All applicable SAP system records, inspection checklists, and tests described in this document are maintained at the Salem and Hope Creek Generating Stations.

2.15 HAZARDOUS WASTE CONTINGENCY PLAN

(40 CFR 265.51(a))

2.15.1 Hazardous Waste Storage

2.15.1.1 Satellite Accumulation Areas

(40 CFR 265.56(h)(1))

Hazardous waste may be collected in satellite accumulation areas. All hazardous waste is maintained in containers (tanks and drums) and equipment suitable for their storage, use or processing. The accumulation period of 90 days may be extended to 180 days provided that all prerequisites as a designated Small Quantity Generator remain in effect. Containers used to collect hazardous waste in satellite accumulation areas meet the following requirements:

- 55-gallon drums, or other containers designated for the proper disposal of that particular waste;
- Securely closed to prevent escape of hazardous waste or its vapors, except during filling or emptying;
- Labeled as "Hazardous Waste" with the chemical name and the date that the quantity of waste reaches 55 gallons (or one quart for acutely hazardous waste), and the name and phone number of the responsible person and department generating the waste;
- Placed in a 180-day hazardous waste storage area within three calendar days of the date above.

Satellite accumulation areas are established on an as-needed basis in the Salem and Hope Creek Generating Stations. Typical hazardous wastes accumulated include waste solvents and paints.

2.15.1.2 180-Day Storage Areas

(40 CFR 265.35)

The primary 180-day hazardous waste storage area (Location No. SH3) for PSEG Nuclear LLC is located inside the Protected Area, west of the Nuclear Operations Service Facility (NOSF). Materials are stored within enclosed steel drum storage containers located on concrete pads. The following are the locations of other 180-day hazardous waste storage areas:

- Hope Creek - 102' Common Area of Turbine Building (Location No. SH30); and
- Combo Shop (Location No. SH5).

Each area is clearly designated as a hazardous waste storage area, with certain areas being encompassed within steel cages. Each area has several types of waste. The various hazardous waste drums are stored on pallets labeled and separated by waste type.

The 180-day hazardous waste storage areas meet the following requirements:

- Able to be inspected daily for leaks and deterioration;
- Possess secondary containment;
- Immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee;
- Adequate aisle space to allow unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment (NJDEP Generator Inspection Report Policy is 18", and 30" if drums are double stacked); and
- Configured to minimize radiological exposure to personnel working around or inspecting the area (i.e., maintaining radiological exposure as low as reasonable achievable (ALARA)).

Containers placed in a 180-day hazardous waste storage area shall:

- Be securely closed so that there is no escape of waste or its vapors, except during filling or emptying;
- Be labeled as "Hazardous Waste" with the chemical name and segregated by waste type;
- Be arranged so that the identification labels or markings are visible;
- Show the date that the containers became full or no longer used (i.e., date when the job was completed). This may be up to 55 gallons of hazardous waste or up to 1 quart of acutely hazardous waste; and
- Be inspected weekly, looking for leaks and for deterioration caused by corrosion or other factors.

2.15.2 Hazardous Wastes Types

Hazardous wastes generated at the facility include the following wastes and their NJDEP designations:

F003, F005	-	Spent non-halogenated solvents;
F001, F002	-	Spent halogenated solvents;
D001	-	Ignitable wastes;
D002	-	Corrosive wastes;
D003	-	Reactive wastes; and
D004-D011	-	Toxic (heavy metals) wastes.

2.15.3 Implementation of the Contingency Plan

(40 CFR 265.32(a), 265.32(b), 265.34(a), 265.51(b), 265.52(a), 265.52(b) and 265.56(a))

This Contingency Plan will be activated when needed to avert a potential discharge of hazardous waste into the environment. PSEG Nuclear LLC maintains various means of notification to personnel both on and offsite. These include in-plant intercoms, personal pagers, telephones, cellular phones, two-way radios, and an area emergency siren system. Since PSEG Nuclear LLC's hazardous wastes possess physical and health hazard characteristics similar to hazardous substances which are stored as products (e.g., corrosives, ignitables, toxic, oils), contingency procedures for response to a release of hazardous waste will be similar to procedures used in responding to spills of hazardous substances. For this reason, the required elements of the Hazardous Waste Contingency Plan are combined into this DPRP as provided for by 40 CFR 265.52(b). These Contingency Plan/Discharge Emergency Procedures can be found in Part III -Spill/Discharge Response Plan.

2.15.4 Hazardous Waste Contingency Plan Amendments

(40 CFR 265.54)

The Hazardous Waste Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

1. Applicable regulations are revised;

2. The Plan fails in an emergency;

3. The facility changes (in its design, construction, operation, maintenance, or other circumstances) in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

4. The list of emergency coordinators changes; or

5. The list of emergency equipment changes.

SECTION 3: SCHEDULE FOR UPGRADES

(NJAC 7:1E-4.2(d))

As per NJAC 7:1E-4.2(d), PSEG Nuclear LLC includes an Upgrade Plan and estimated completion dates, as needed, to be approved by the NJDEP, for upgrading equipment or portions of the facility. Any proposed Upgrade Plan is based on an evaluation of near-term discharge protection needs in the context of continuing facility planning and plant operational upgrades at PSEG Nuclear LLC. The specific upgrades will be periodically evaluated against other environmental and nuclear risks and priorities, and adjusted accordingly.

On an annual basis, PSEG Nuclear LLC allocates a certain amount of resources for improvements and upgrades of the generating facilities. A significant portion of these resources is dedicated for improvements and upgrades required in all areas of nuclear environmental compliance and betterment, which includes, but is not limited to compliance with this DPRP.

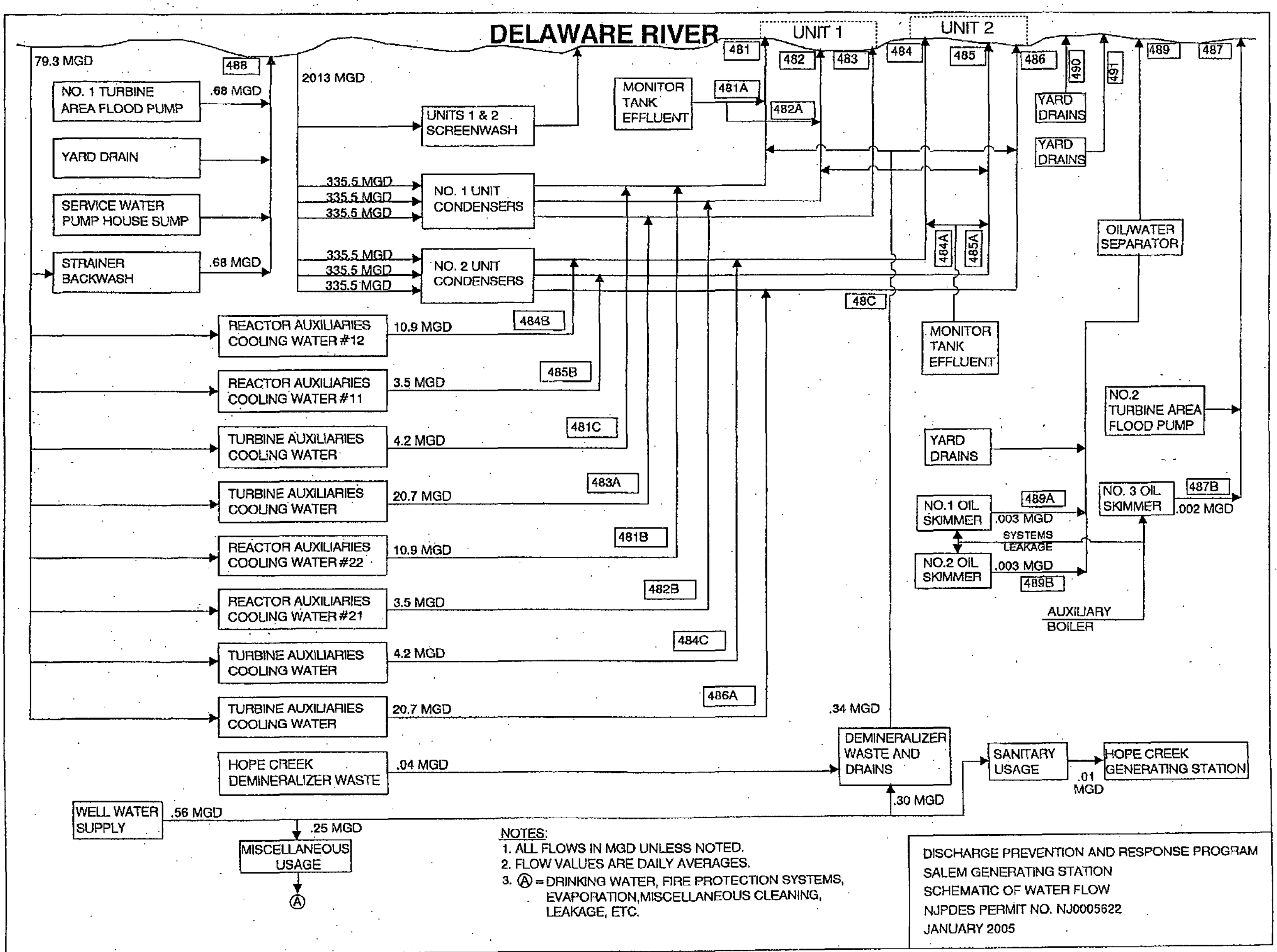
The entire planning process and resource allocation is repeated on an annual basis and the available resources compared with all outstanding commitments at the facility. Based on this analysis and a re-allocation of resources, a revised Plan for facility/equipment upgrades will be submitted to the NJDEP for approval, as needed.

SECTION 4: FIGURES

This Section contains the following figures associated with Part II of this DPRP:

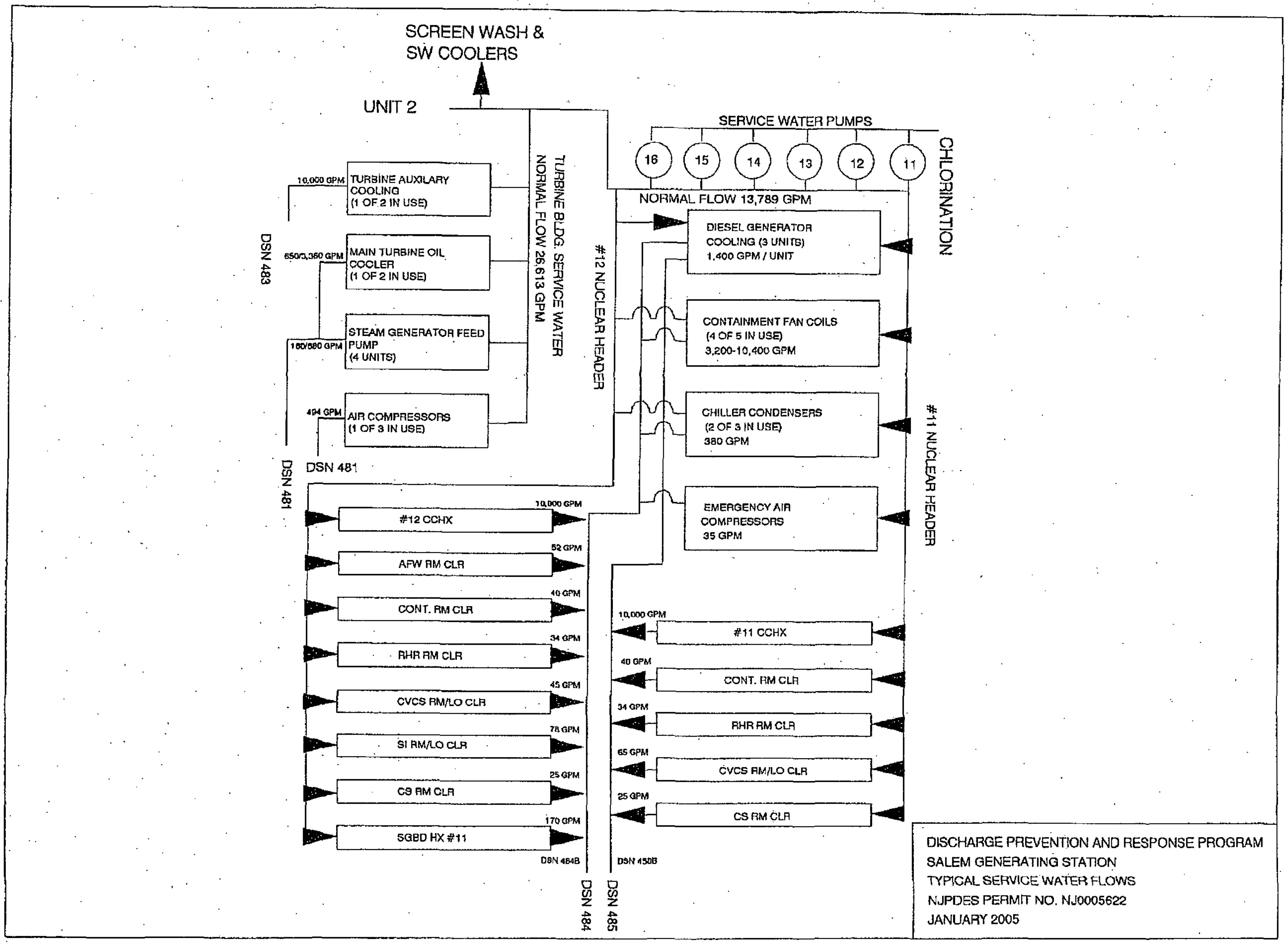
FIGURE II-1 **SALEM STATION NJPDES DSN FLOWS (11 sheets)**

FIGURE II-2 **HOPE CREEK STATION NJPDES DSN FLOWS (7 sheets)**



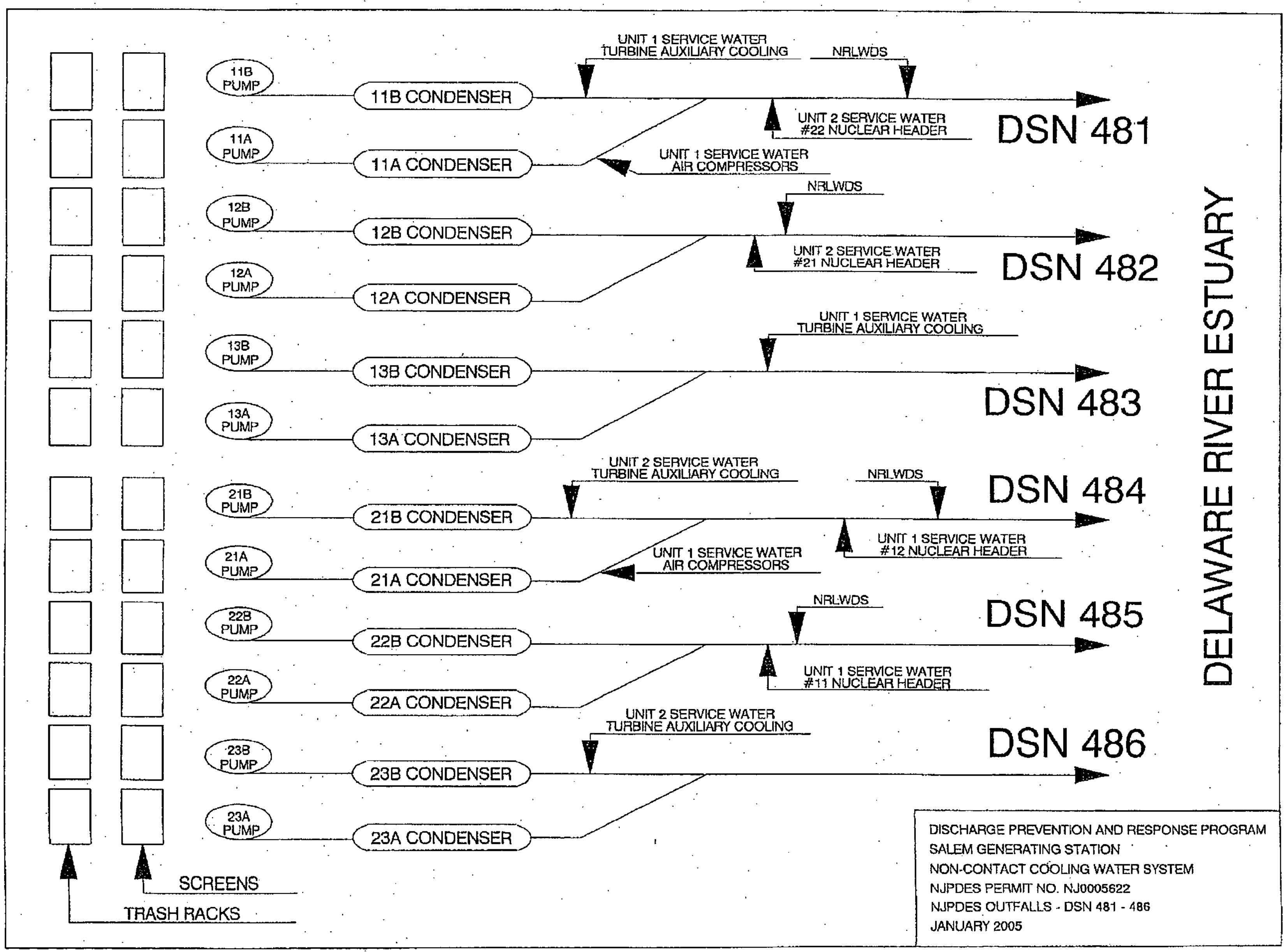
SFLOW.DRW

FIGURE II-1



SWS.DRW

FIGURE II-1



CWSSYS.DRW

FIGURE II-1

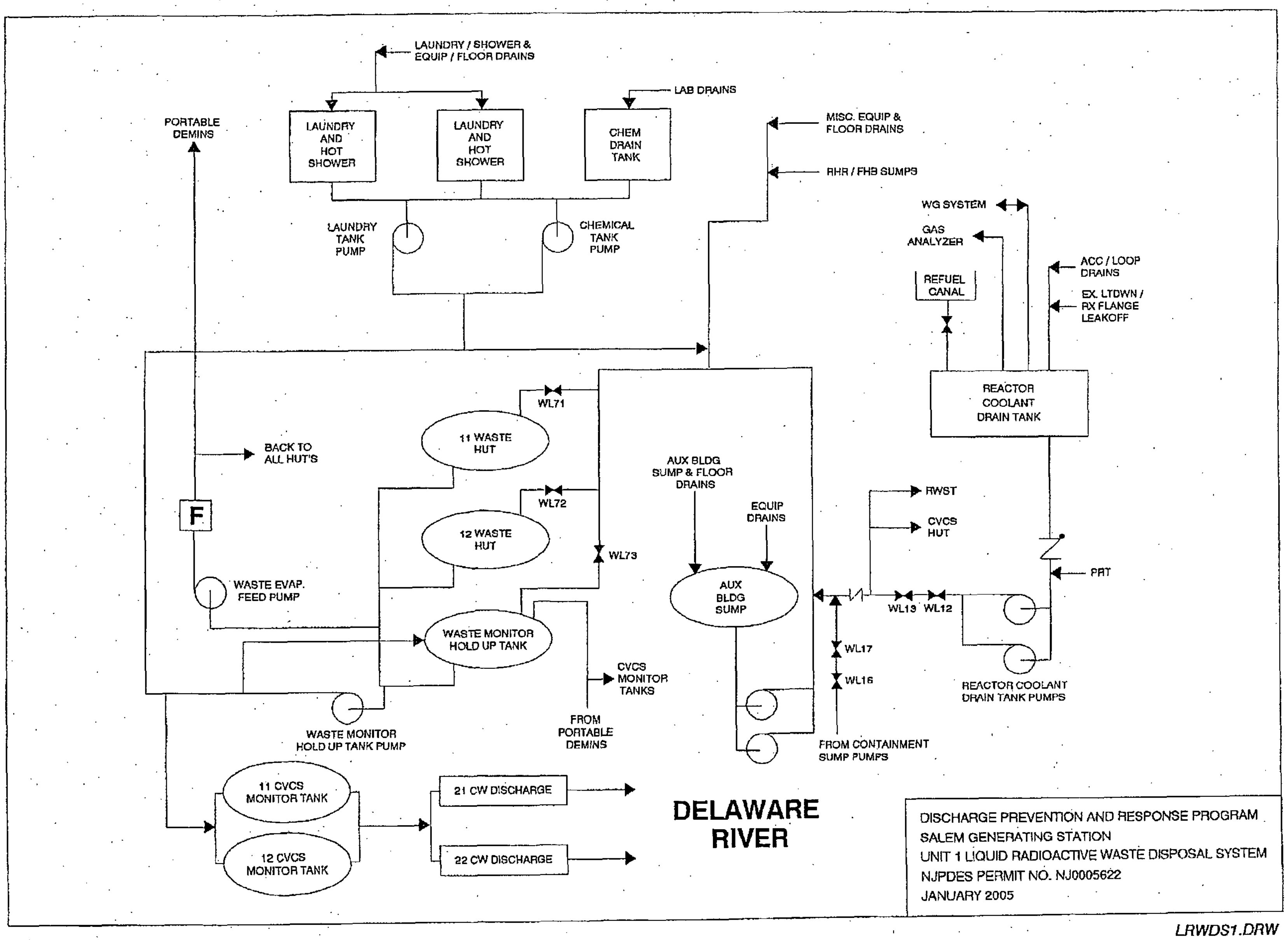
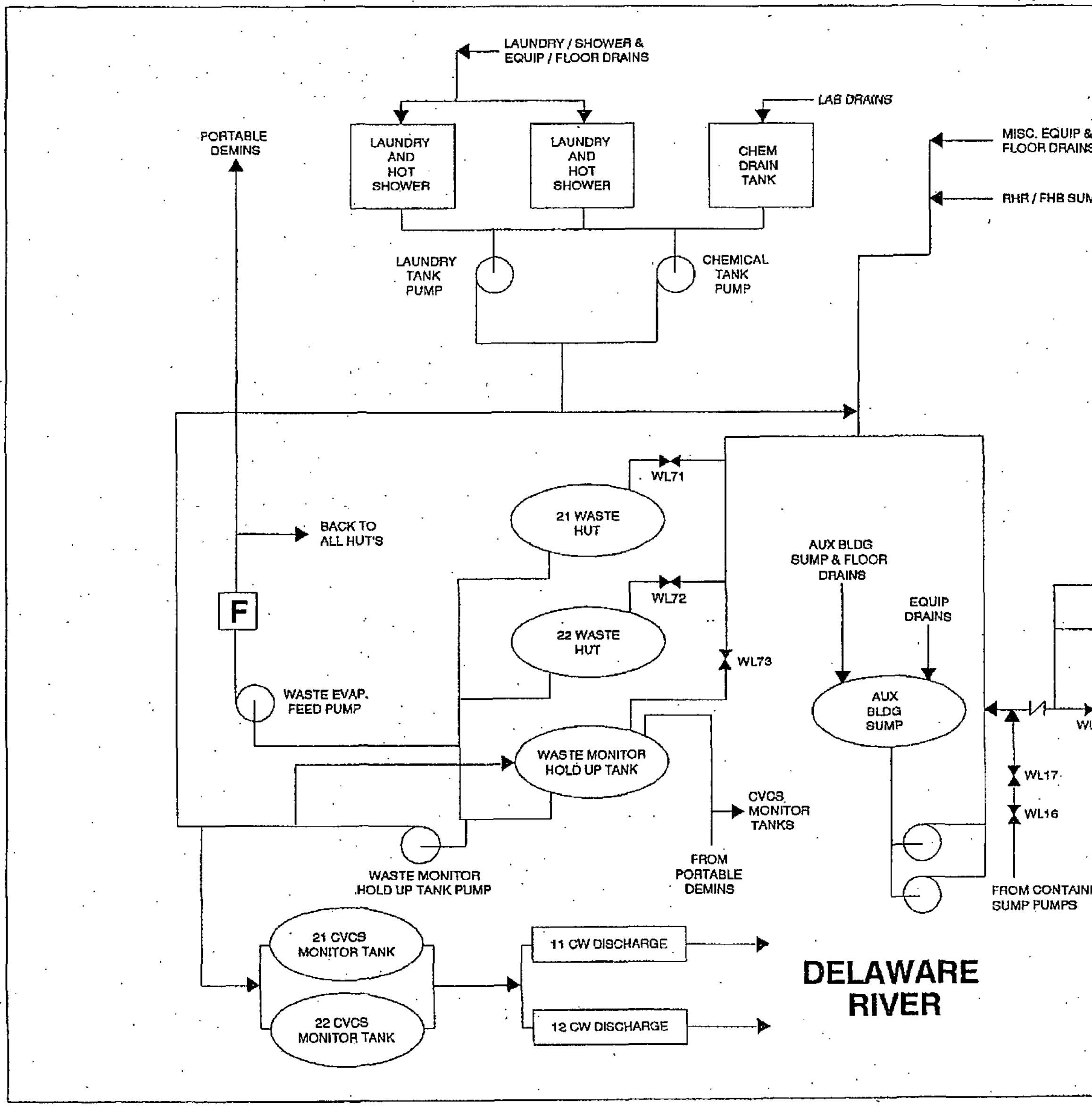

LAUNDRY / SHOWER & EQUIP / FLOOR DRAINS
LAB DRAINS
PORTABLE DEMINS
LAUNDRY AND HOT SHOWER
LAUNDRY AND HOT SHOWER
CHEM DRAIN TANK
MISC. EQUIP & FLOOR DRAINS
RHR / FHB SUMPS
WG SYSTEM
GAS ANALYZER
LAUNDRY TANK PUMP
CHEMICAL TANK PUMP
ACC / LOOP DRAINS
REFUEL CANAL
EX. LTDWN / RX FLANGE LEAKOFF
REACTOR COOLANT DRAIN TANK
WL71
11 WASTE HUT
BACK TO ALL HUT'S
AUX BLDG SUMP & FLOOR DRAINS
WL72
EQUIP DRAINS
RWST
CVCS HUT
F
12 WASTE HUT
WL73
PRT
WASTE EVAP. FEED PUMP
AUX BLDG SUMP
WL13
WL12
WASTE MONITOR HOLD UP TANK
WL17
CVCS MONITOR TANKS
WL16
REACTOR COOLANT DRAIN TANK PUMPS
WASTE MONITOR HOLD UP TANK PUMP
FROM PORTABLE DEMINS
FROM CONTAINMENT SUMP PUMPS
11 CVCS MONITOR TANK
21 CW DISCHARGE
DELAWARE RIVER
12 CVCS MONITOR TANK
22 CW DISCHARGE
DISCHARGE PREVENTION AND RESPONSE PROGRAM
SALEM GENERATING STATION
UNIT 1 LIQUID RADIOACTIVE WASTE DISPOSAL SYSTEM
NJPDES PERMIT NO. NJ0005622
JANUARY 2005
LRWDS1.DRW

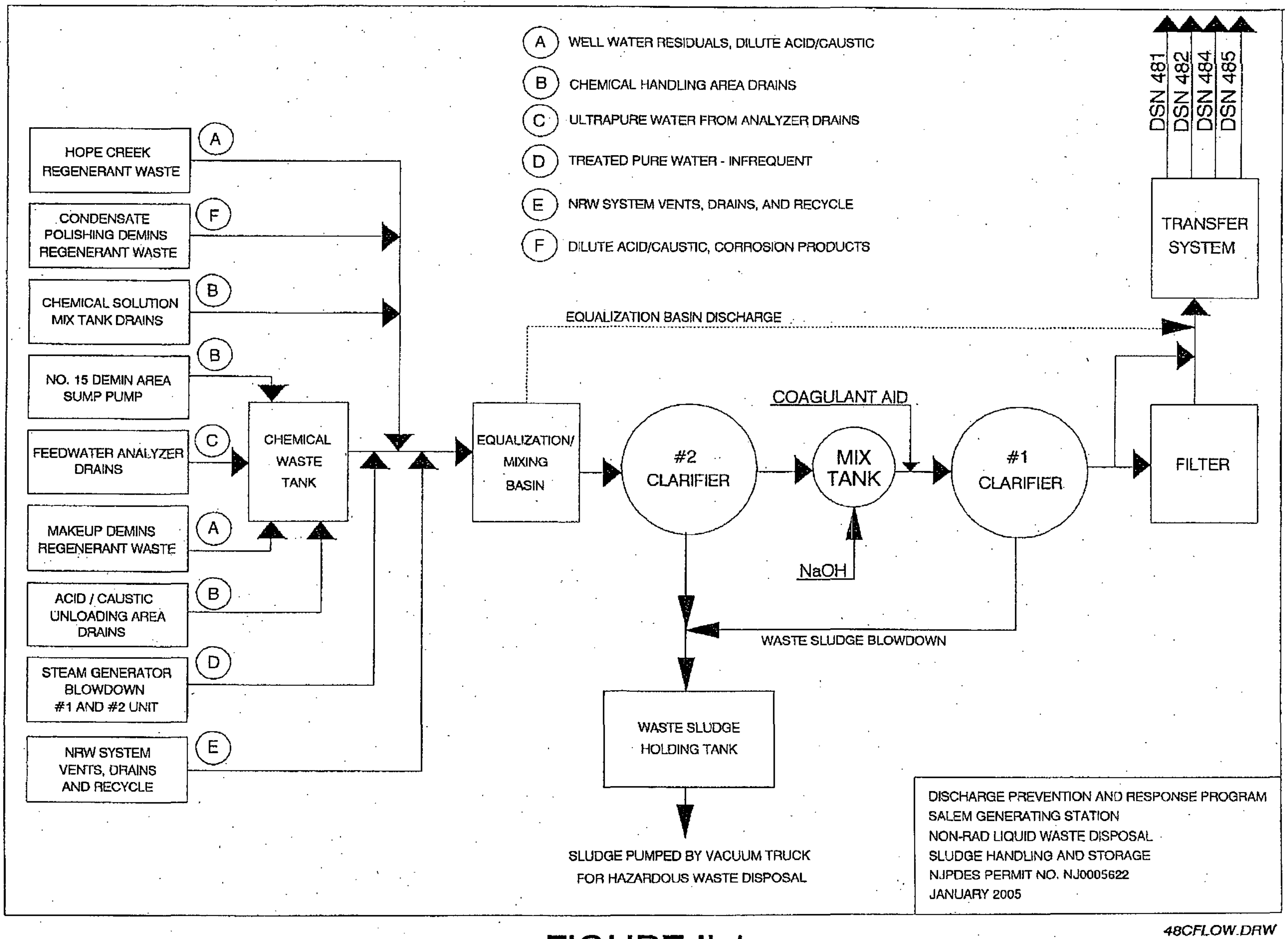
FIGURE II-1



DISCHARGE PREVENTION AND RESPONSE PROGRAM
SALEM GENERATING STATION
UNIT 2 LIQUID RADIOACTIVE WASTE DISPOSAL SYSTEM
NJPDES PERMIT NO. NJ0005622
JANUARY 2005

LRWDS2.DRW

FIGURE II-1



A WELL WATER RESIDUALS, DILUTE ACID/CAUSTIC
B CHEMICAL HANDLING AREA DRAINS
C ULTRAPURE WATER FROM ANALYZER DRAINS
D TREATED PURE WATER - INFREQUENT
E NRW SYSTEM VENTS, DRAINS, AND RECYCLE
F DILUTE ACID/CAUSTIC, CORROSION PRODUCTS
HOPE CREEK REGENERANT WASTE
CONDENSATE POLISHING DEMINS REGENERANT WASTE
CHEMICAL SOLUTION MIX TANK DRAINS
NO. 15 DEMIN AREA SUMP PUMP
FEEDWATER ANALYZER DRAINS
MAKEUP DEMINS REGENERANT WASTE
ACID / CAUSTIC UNLOADING AREA DRAINS
STEAM GENERATOR BLOWDOWN #1 AND #2 UNIT
NRW SYSTEM VENTS, DRAINS AND RECYCLE
CHEMICAL WASTE TANK
EQUALIZATION/ MIXING BASIN
EQUALIZATION BASIN DISCHARGE
#2 CLARIFIER
COAGULANT AID
MIX TANK
NaOH
#1 CLARIFIER
FILTER
TRANSFER SYSTEM
DSN 481
DSN 482
DSN 484
DSN 485
WASTE SLUDGE BLOWDOWN
WASTE SLUDGE HOLDING TANK
SLUDGE PUMPED BY VACUUM TRUCK FOR HAZARDOUS WASTE DISPOSAL
DISCHARGE PREVENTION AND RESPONSE PROGRAM
SALEM GENERATING STATION
NON-RAD LIQUID WASTE DISPOSAL
SLUDGE HANDLING AND STORAGE
NJPDES PERMIT NO. NJ0005622
JANUARY 2005
48CFLOW.DRW

FIGURE II-1

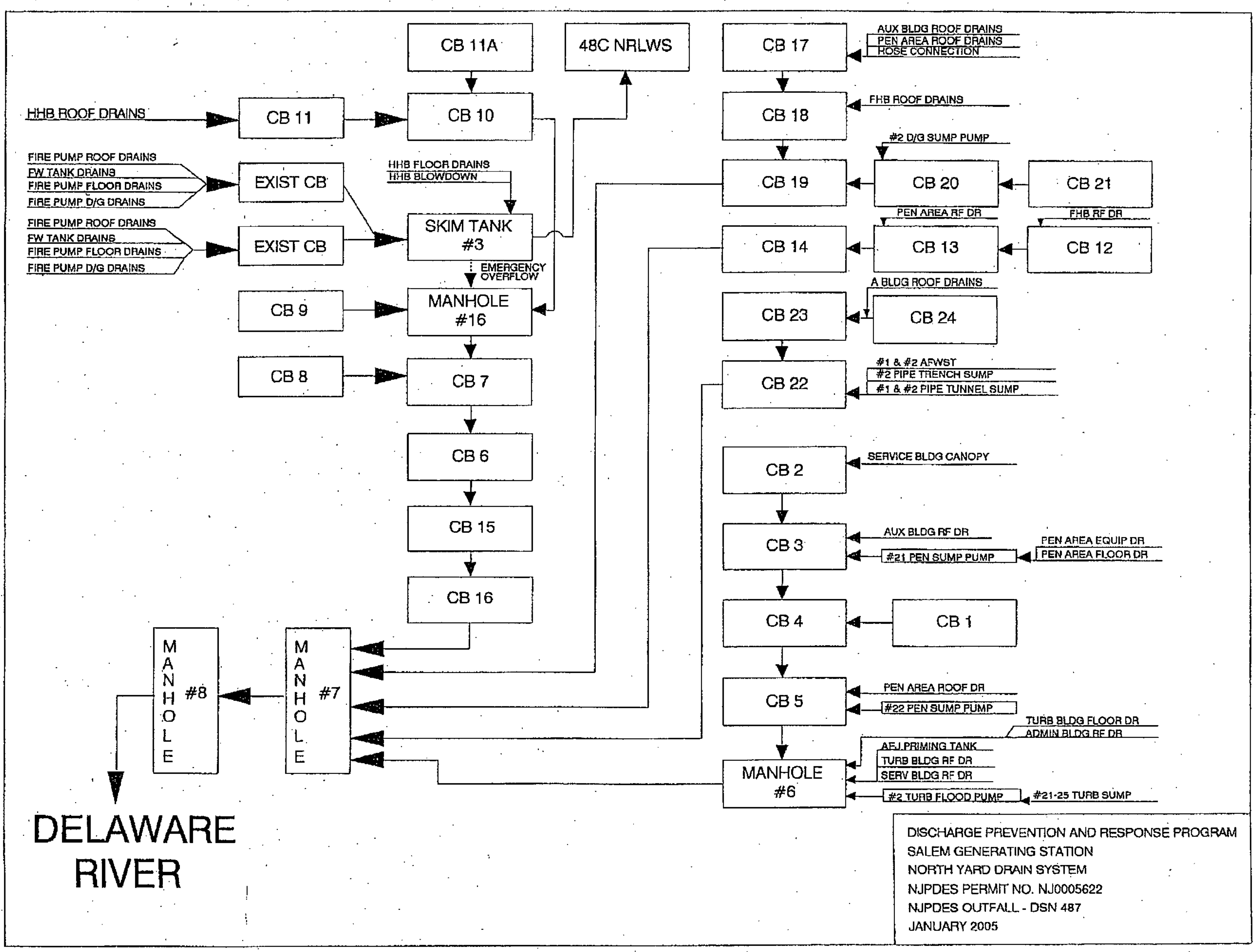
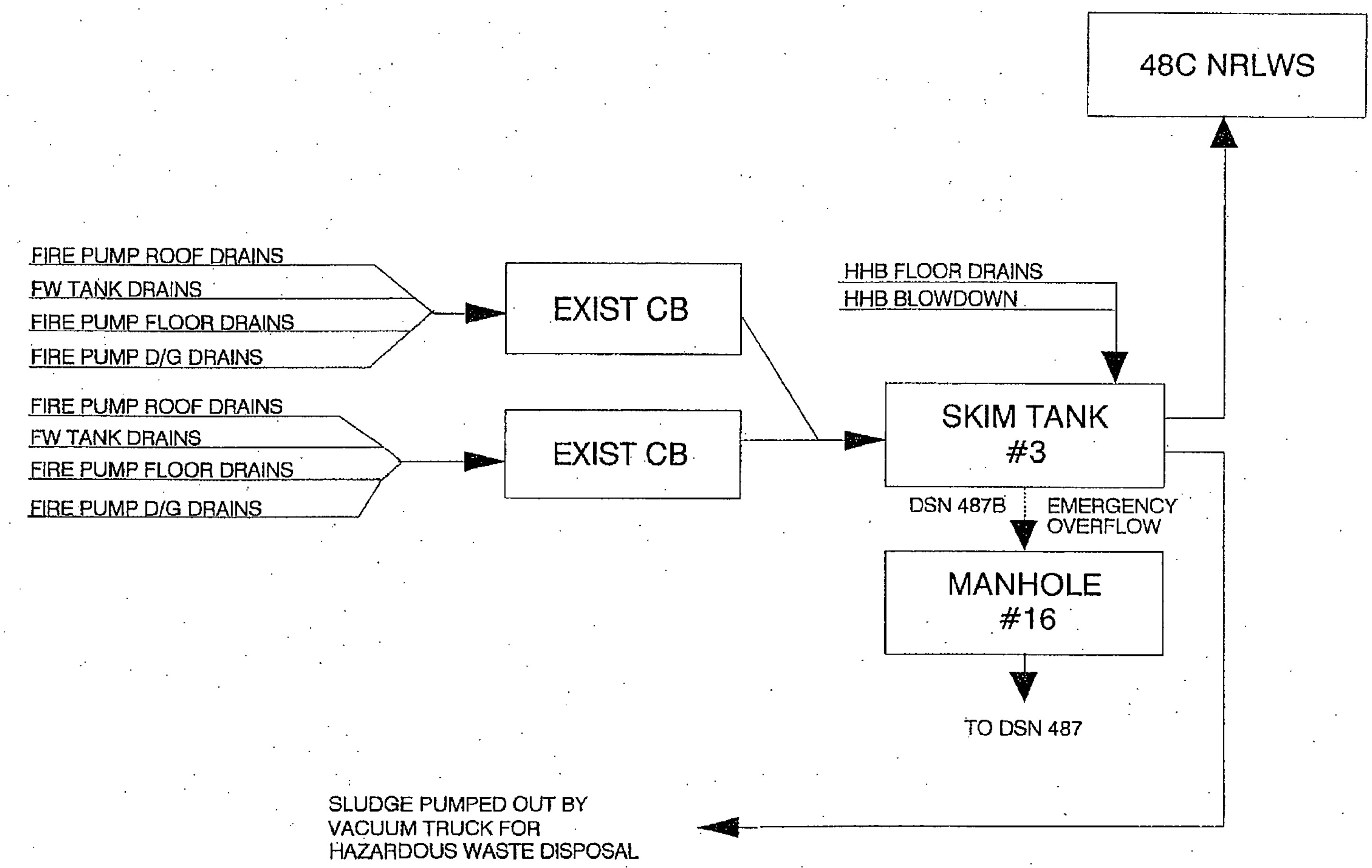


FIGURE II-1

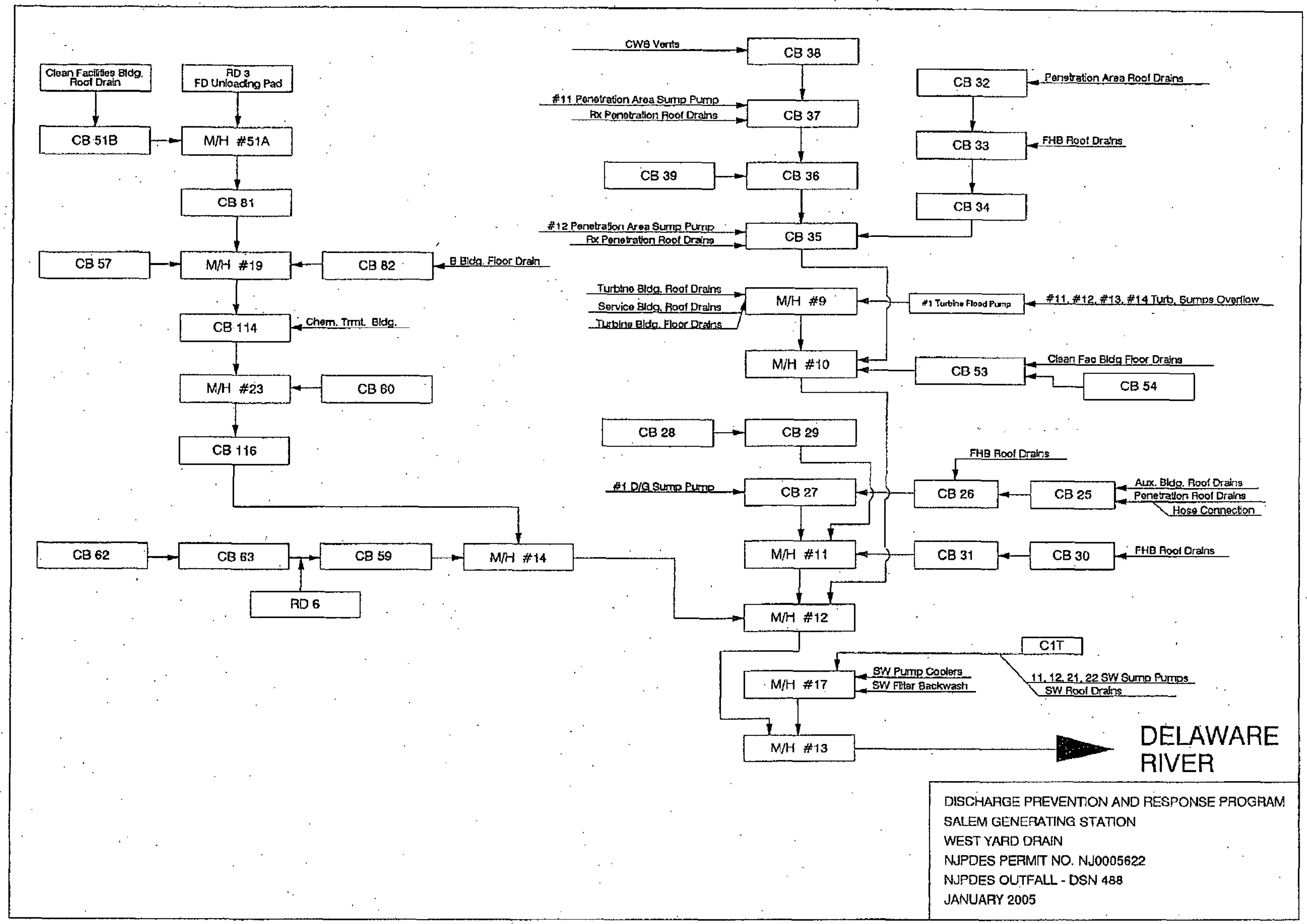
487FLOW.DRW



SALEM GENERATING STATION
NO. 3 OIL/WATER SKIMMER
NJPDES PERMIT NO. NJ0005622
NJPDES OUTFALL - DSN 487B
JANUARY 2005

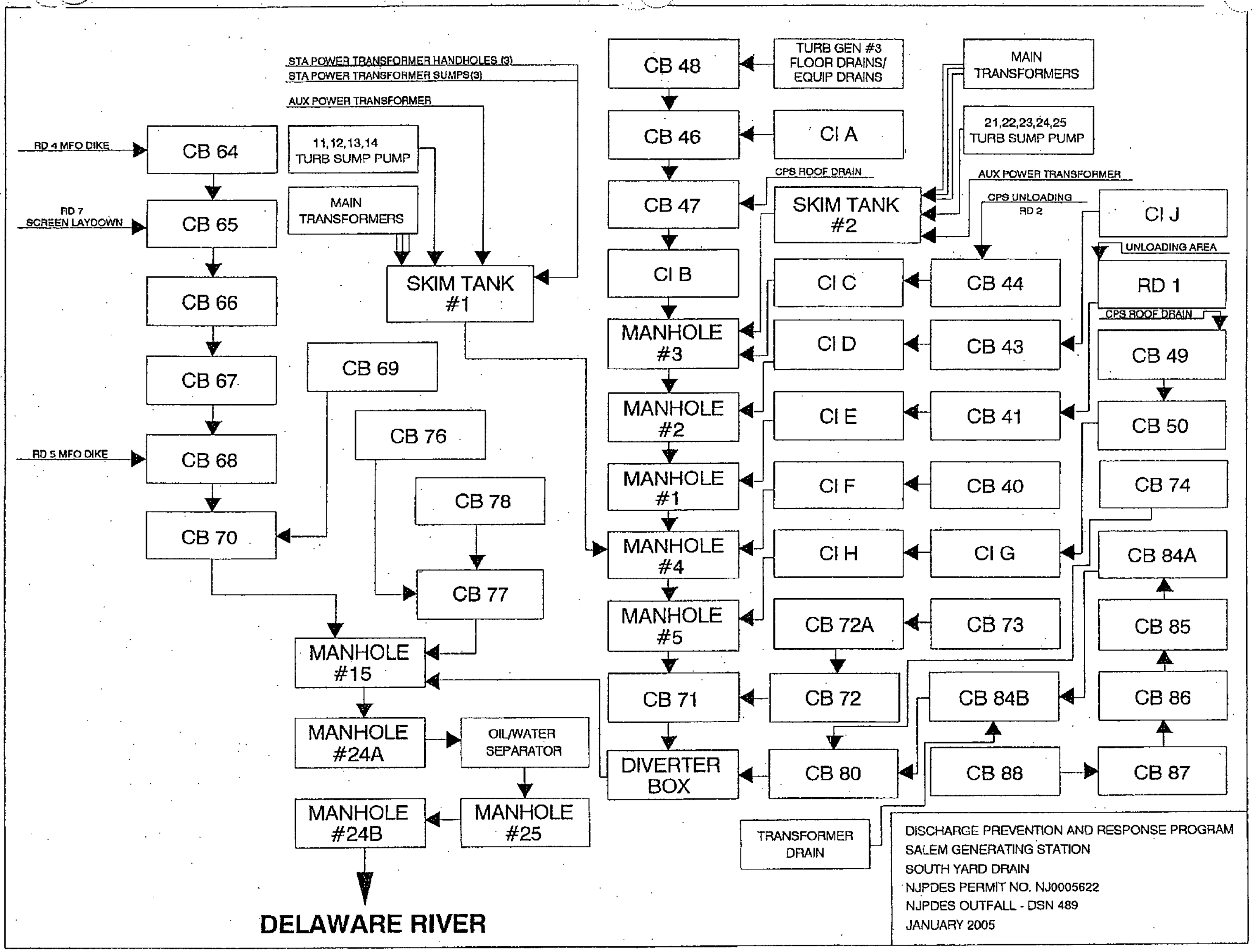
487BFLW2.DRW

FIGURE II-1



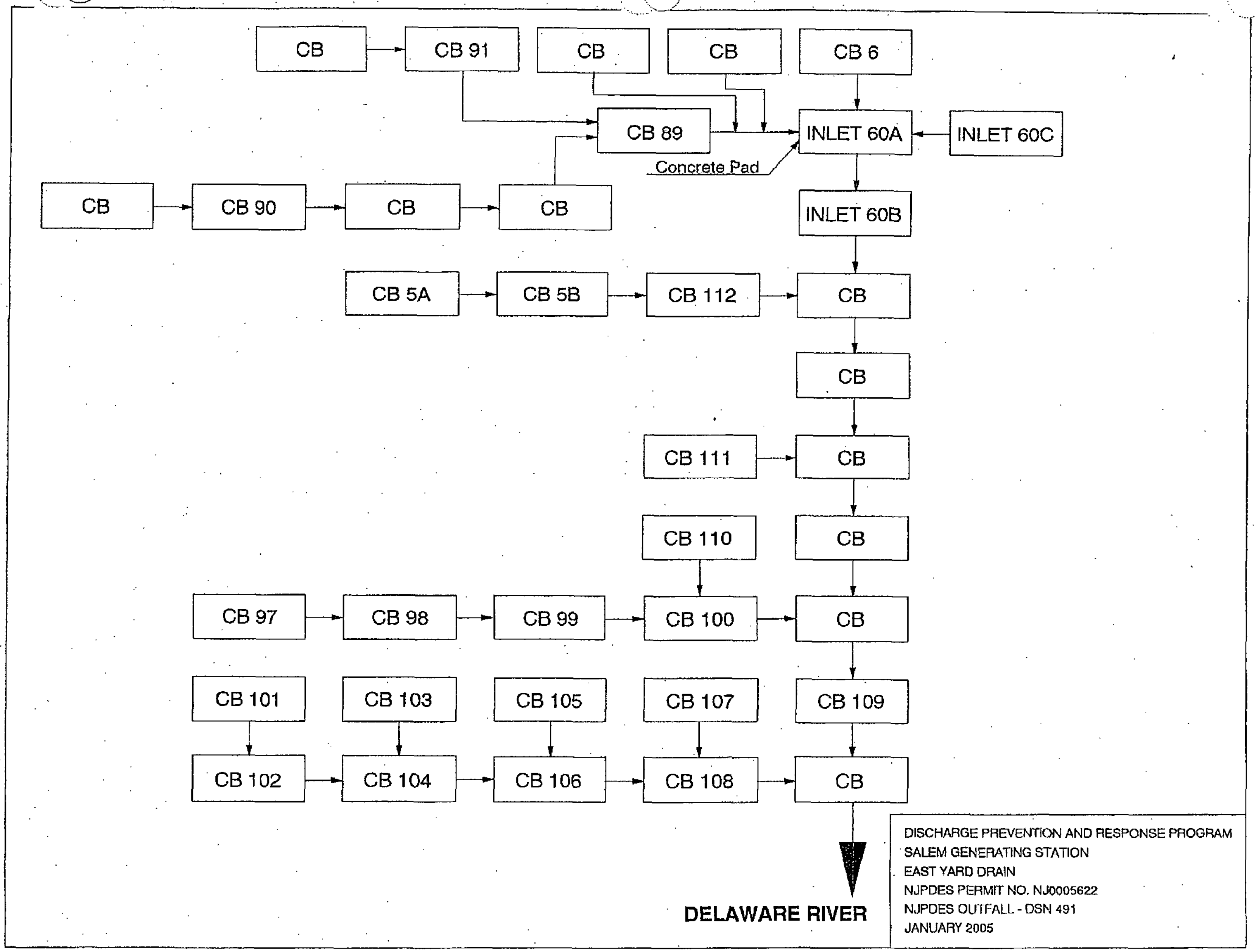
488FLOW.DRW

FIGURE II-1



489FLOW.DRW

FIGURE II-1



491FLOW.DRW

FIGURE II-1

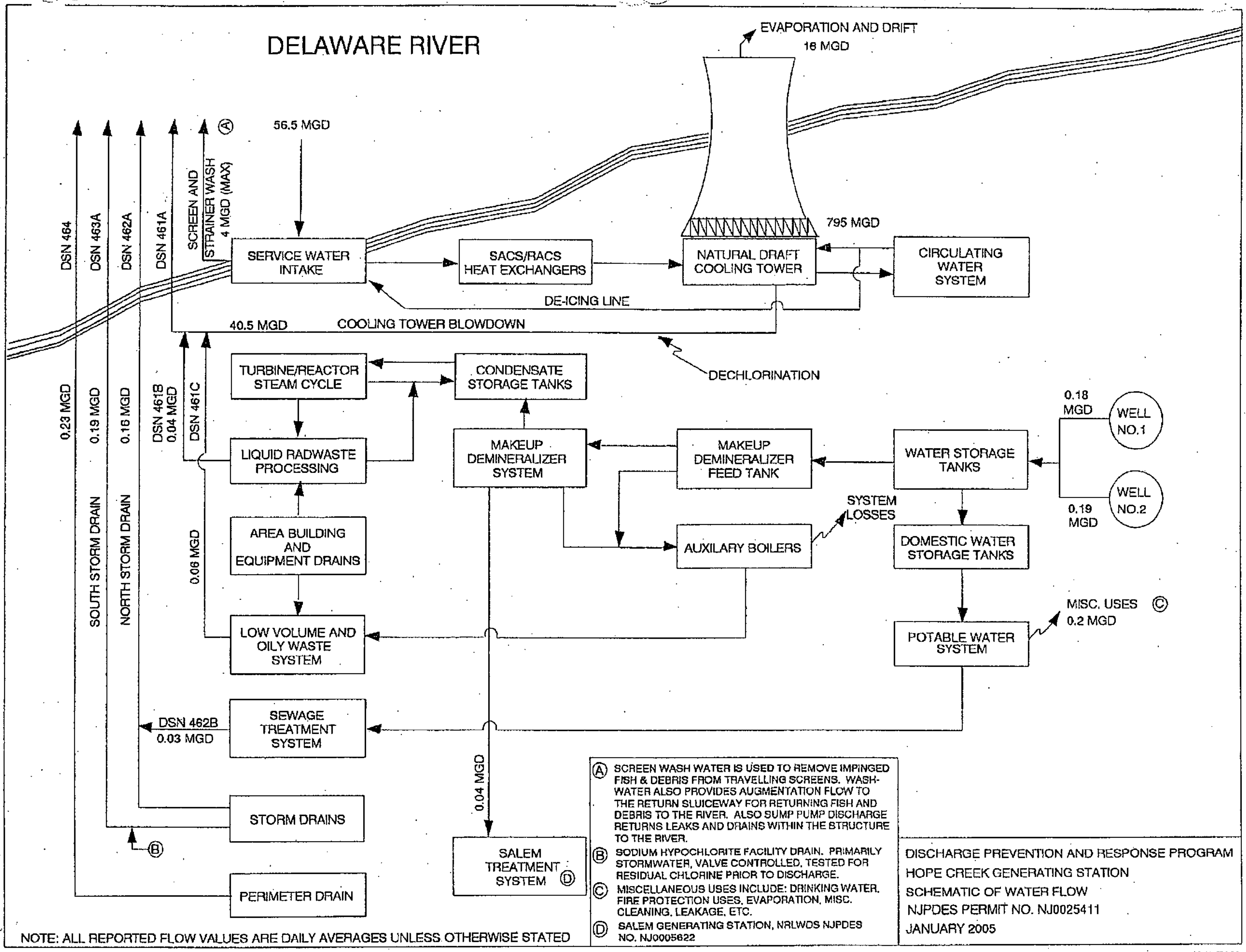
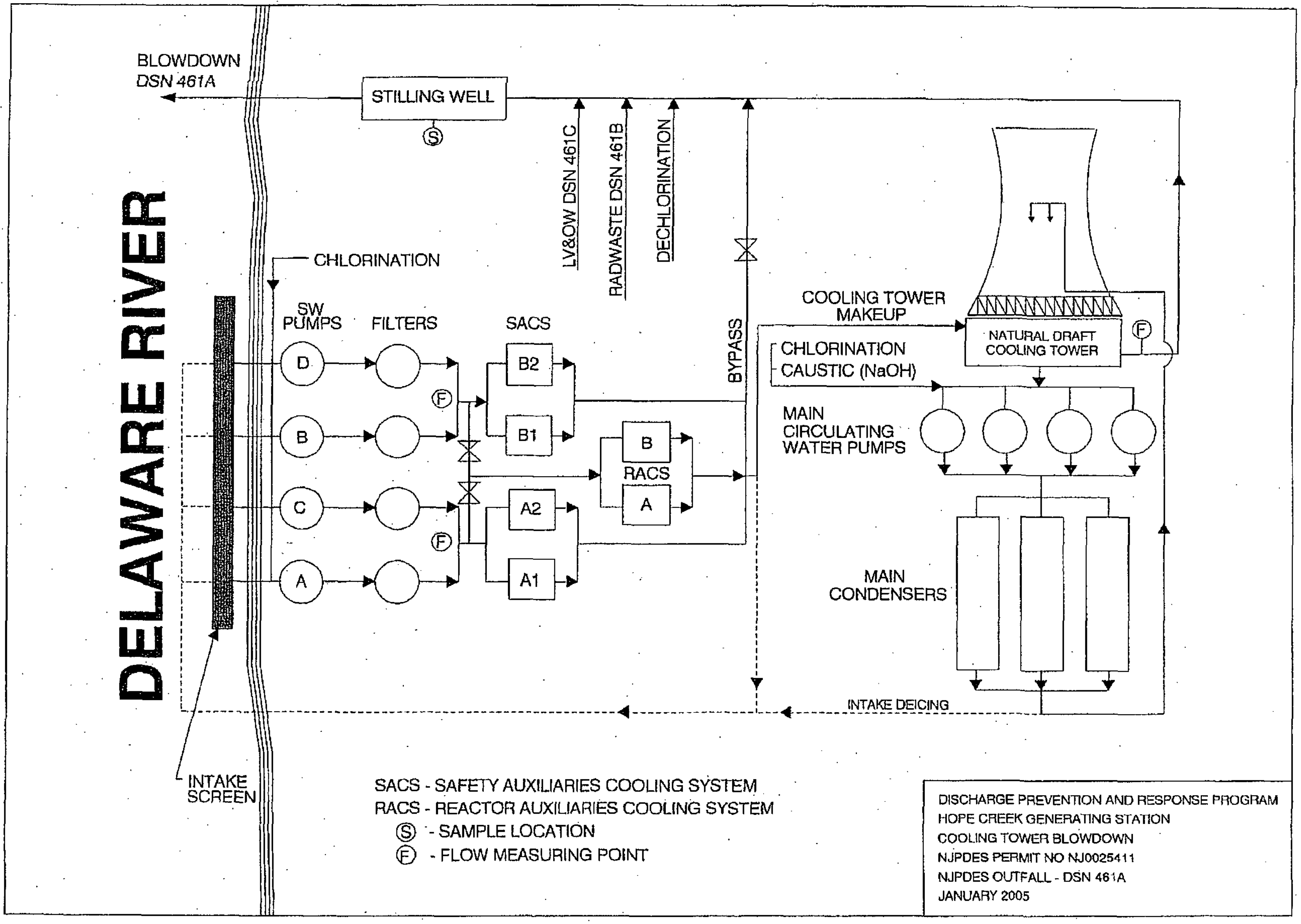


FIGURE II-2

WATRFLOW.DRW

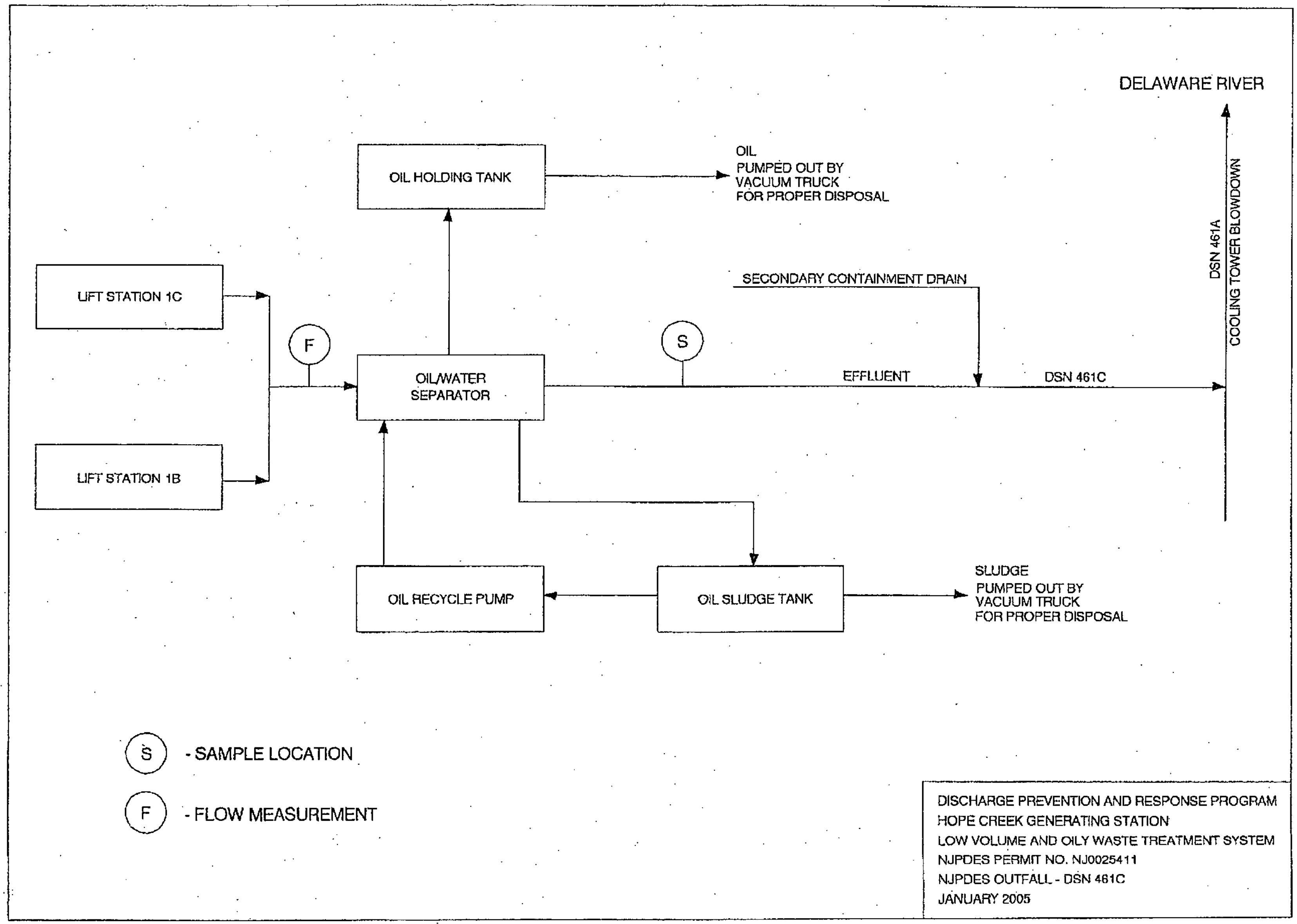


SACS - SAFETY AUXILIARIES COOLING SYSTEM
RACS - REACTOR AUXILIARIES COOLING SYSTEM
Ⓢ - SAMPLE LOCATION
Ⓕ - FLOW MEASURING POINT

DISCHARGE PREVENTION AND RESPONSE PROGRAM
HOPE CREEK GENERATING STATION
COOLING TOWER BLOWDOWN
NJPDES PERMIT NO NJ0025411
NJPDES OUTFALL - DSN 461A
JANUARY 2005

DSN461A.DRW

FIGURE II-2



461CFLW2.DRW

FIGURE II-2

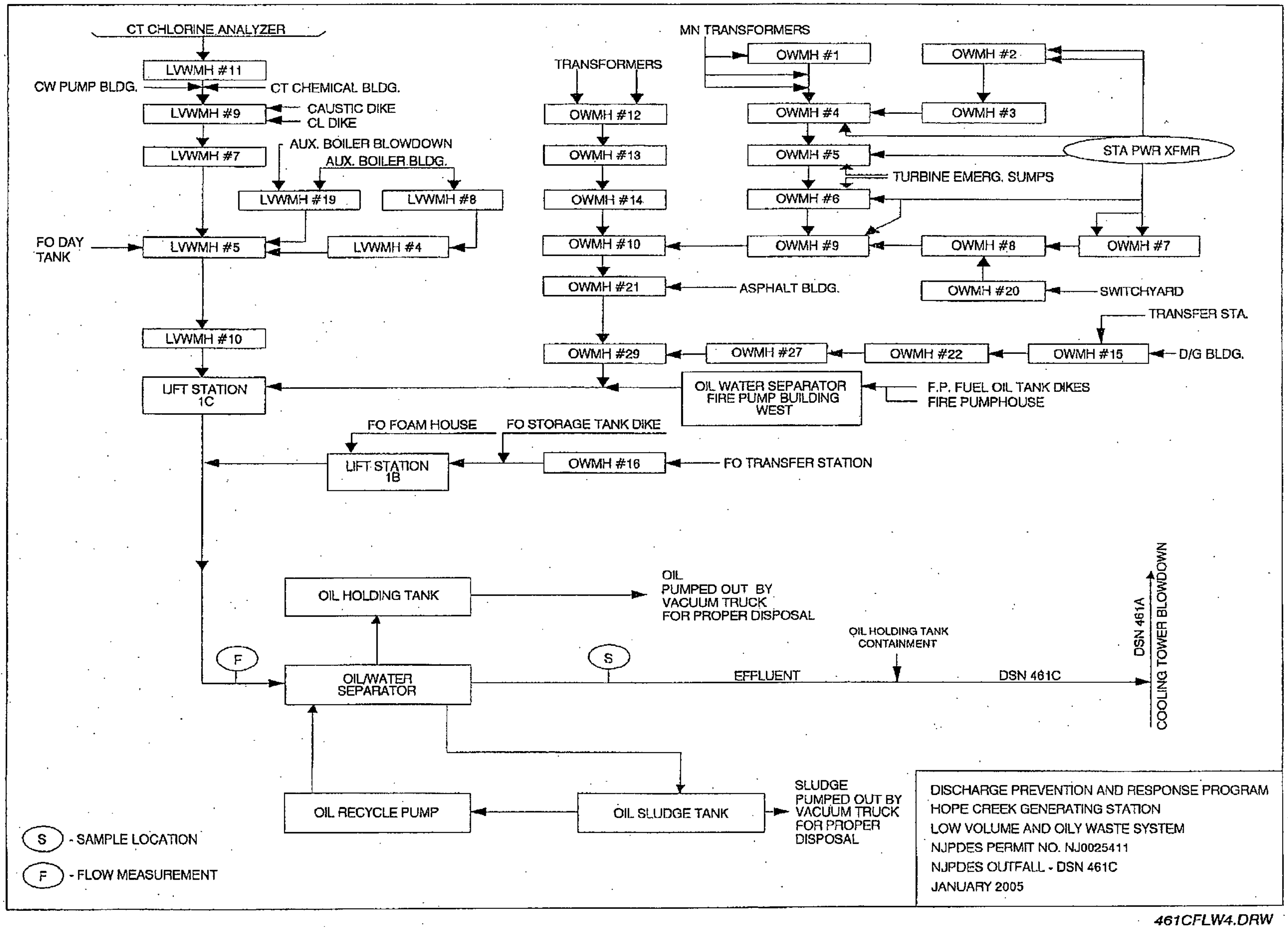
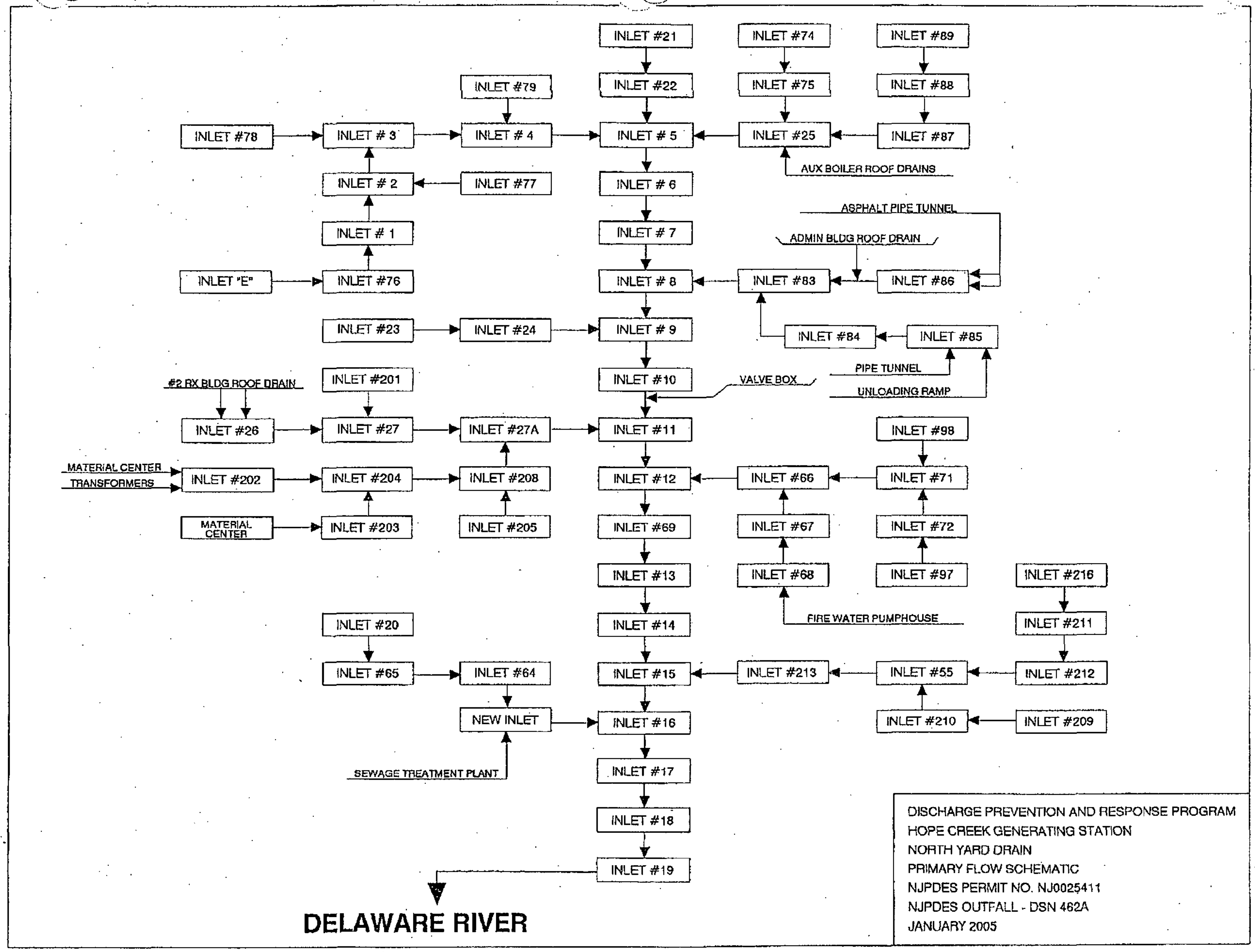
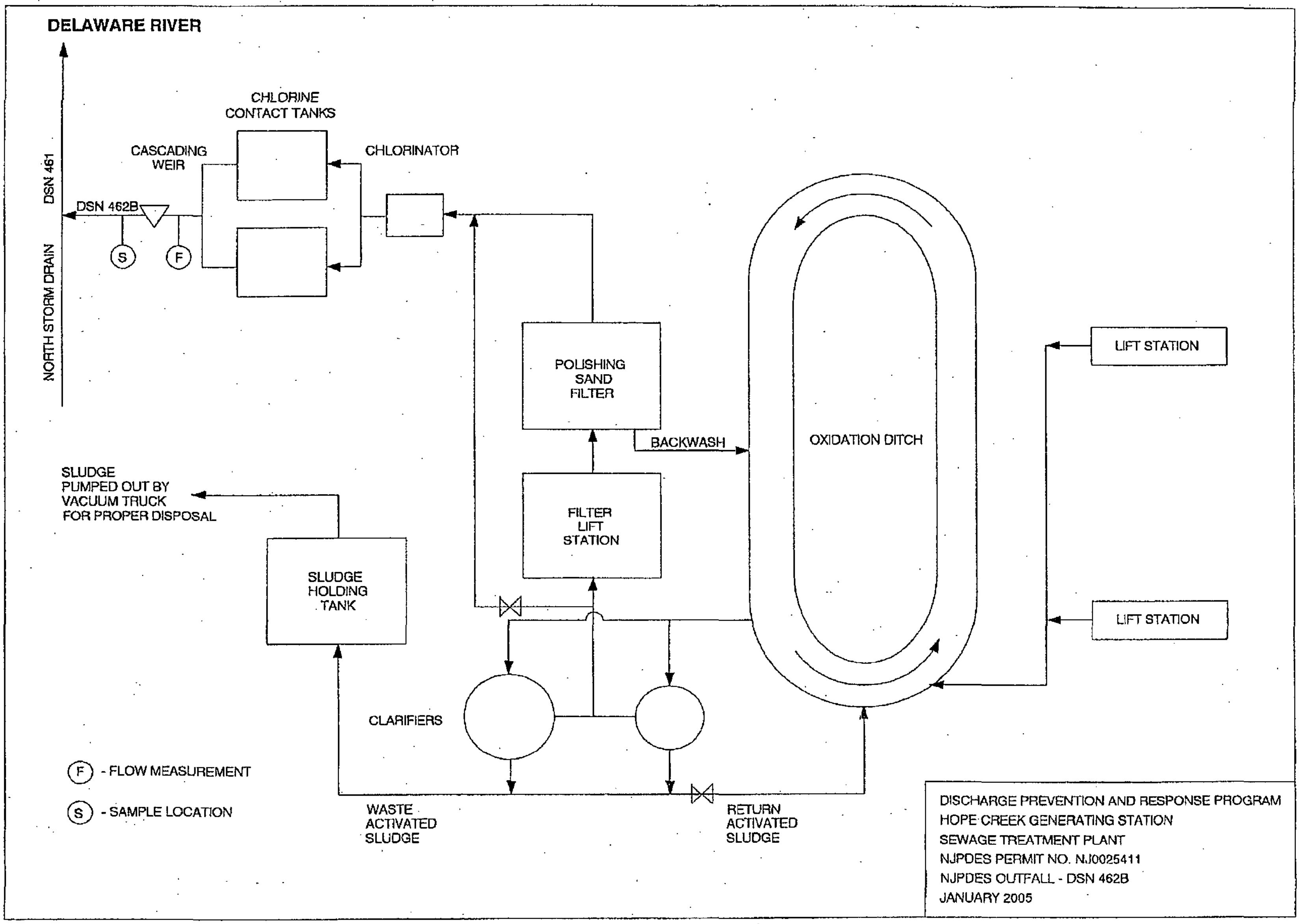

CT CHLORINE ANALYZER
LVWMH #11
CW PUMP BLDG.
CT CHEMICAL BLDG.
LVWMH #9
CAUSTIC DIKE
CL DIKE
LVWMH #7
AUX. BOILER BLOWDOWN
AUX. BOILER BLDG.
LVWMH #19
LVWMH #8
FO DAY TANK
LVWMH #5
LVWMH #4
LVWMH #10
LIFT STATION 1C
MN TRANSFORMERS
TRANSFORMERS
OWMH #1
OWMH #2
OWMH #12
OWMH #4
OWMH #3
OWMH #13
OWMH #5
STA PWR XFMR
TURBINE EMERG. SUMPS
OWMH #14
OWMH #6
OWMH #10
OWMH #9
OWMH #8
OWMH #7
OWMH #21
ASPHALT BLDG.
OWMH #20
SWITCHYARD
TRANSFER STA.
OWMH #29
OWMH #27
OWMH #22
OWMH #15
D/G BLDG.
OIL WATER SEPARATOR FIRE PUMP BUILDING WEST
F.P. FUEL OIL TANK DIKES
FIRE PUMPHOUSE
FO FOAM HOUSE
FO STORAGE TANK DIKE
LIFT STATION 1B
OWMH #16
FO TRANSFER STATION
OIL HOLDING TANK
OIL PUMPED OUT BY VACUUM TRUCK FOR PROPER DISPOSAL
F
S
OIL/WATER SEPARATOR
EFFLUENT
OIL HOLDING TANK CONTAINMENT
DSN 461C
DSN 461A
COOLING TOWER BLOWDOWN
OIL RECYCLE PUMP
OIL SLUDGE TANK
SLUDGE PUMPED OUT BY VACUUM TRUCK FOR PROPER DISPOSAL
S - SAMPLE LOCATION
F - FLOW MEASUREMENT
DISCHARGE PREVENTION AND RESPONSE PROGRAM
HOPE CREEK GENERATING STATION
LOW VOLUME AND OILY WASTE SYSTEM
NJPDES PERMIT NO. NJ0025411
NJPDES OUTFALL - DSN 461C
JANUARY 2005
461CFLW4.DRW

FIGURE II-2



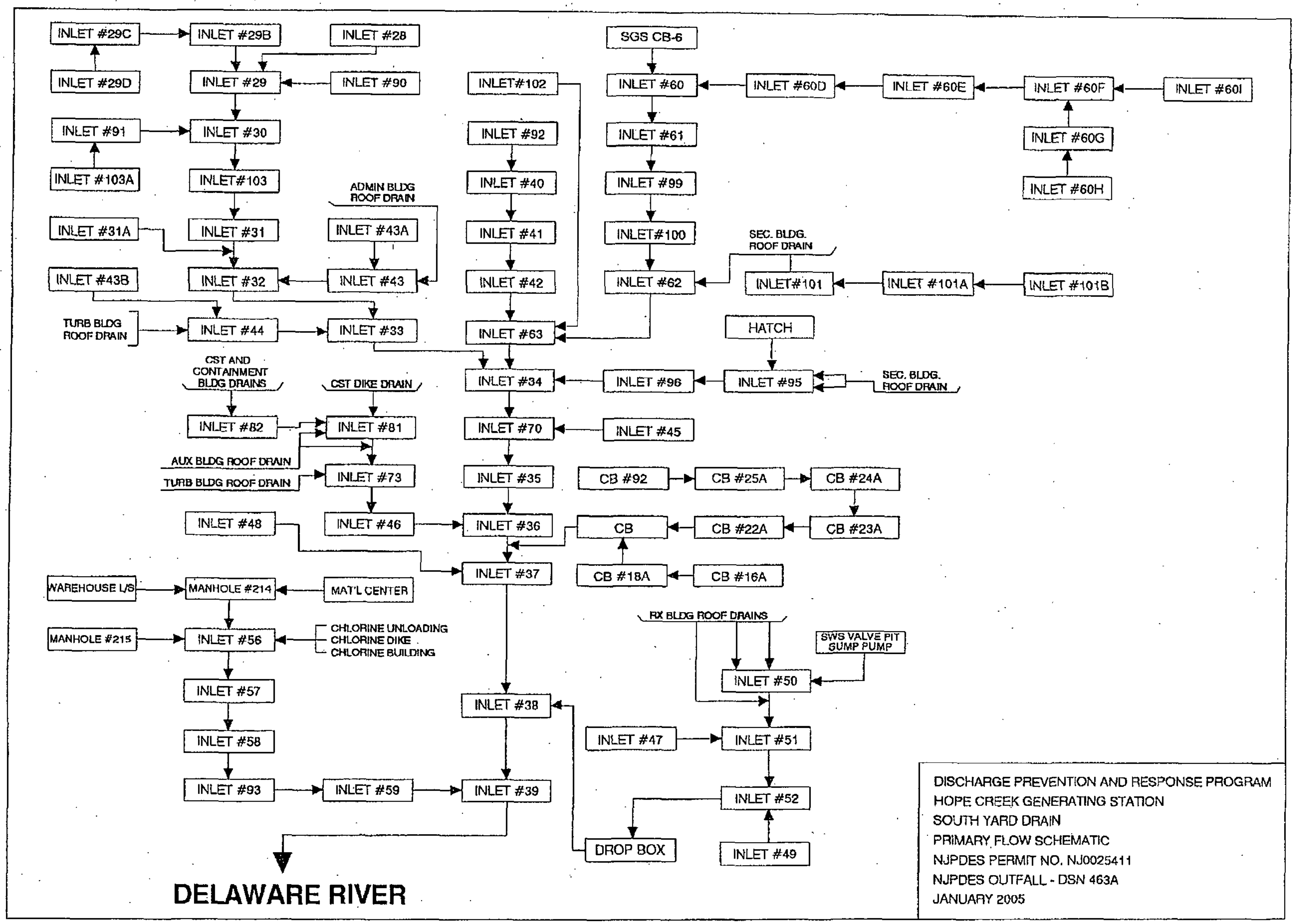
462AFLOW.DRW

FIGURE II-2



462BFLOW.DRW

FIGURE II-2



463AFLOW.DRW

FIGURE II-2

SECTION 5: TABLES

This Section contains the following three sets of tables associated with Part II of this DPRP:

TABLE II-1A	**SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES**
TABLE II-1B	**HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES**
TABLE II-1C	**COMMON STORAGE AND PROCESS FACILITIES**
TABLE II-1D	**SMALL QUANTITY CHEMICAL STORAGE AREAS**
TABLE II-2A	**SALEM GENERATING STATION TRUCK LOADING/UNLOADING AREAS**
TABLE II-2B	**HOPE CREEK GENERATING STATION TRUCK LOADING/UNLOADING AREAS**
TABLE II-3A	**SALEM GENERATING STATION TANK SPILL RISK MATRIX**
TABLE II-3B	**HOPE CREEK GENERATING STATION TANK SPILL RISK MATRIX**
TABLE II-3C	**COMPLETED PSEG NUCLEAR LLC TANK TESTING MATRIX**
TABLE II-3D	**UPCOMING PSEG NUCLEAR LLC TANK TESTING MATRIX AND SCHEDULE**
TABLE II-4A	**PSEG NUCLEAR LLC COMPLETED UNDERGROUND PIPING TESTING MATRIX**
TABLE II-4B	**PSEG NUCLEAR LLC UPCOMING UNDERGROUND PIPING TESTING MATRIX AND SCHEDULE**
TABLE II-5	**FACILITY/EQUIPMENT UPGRADE PLAN**

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S1	1LWE1	D3	NRLWDS WASTE EQUALIZA-TION BASIN NJPDES	LINED CONCRETE	YARD - NON-RAD-WASTE DISPOSAL SYSTEM (WASTE BASIN)	PROCESS WASTE-WATER	240,000	HOUSEKEEPING: CONCRETE FLOOR	N/A	LEVEL INDICATOR	N/A	D14, D15
S2	1LWE7	D3	NRLWDS CLARIFIER NO. 1 NJPDES	COATED CARBON STEEL	YARD; N OF CIRC WATER BLDG	PROCESS WASTE-WATER	340,000	HOUSEKEEPING: CONCRETE FLOOR	N/A	LEVEL INDICATOR	CATHODIC PROTEC-TION, COATED	D6
S3	1LWE8	D3	NRLWDS CLARIFIER NO. 2 NJPDES	COATED CARBON STEEL	YARD. N OF CIRC WATER BLDG	PROCESS WASTE-WATER	440,000	HOUSEKEEPING: CONCRETE FLOOR	N/A	LEVEL INDICATOR	CATHODIC PROTEC-TION, COATED	D6
S4	1CLE6	D3	COOLING WATER SODIUM HYPOCHLO-RITE STORAGE TANK NO. 1	LINED STEEL	YARD, SW OF UNIT 1 REACTOR	15% SODIUM HYPO-CHLORITE SOLUTION	88,000	SYNTHETIC IMPERMEABLE LINER OVER EARTH DIKE (SAND, GRAVEL & EARTHEN)	184,611 (COMMON)	UEHLING MERCURY LEVEL INDICATOR	CATHODIC PROTEC-TION, COATED, LINED	D6, D22, D25, D33, D34
S5	1CLE7	D3	COOLING WATER SODIUM HYPOCHLO-RITE STORAGE TANK NO. 2	LINED STEEL	YARD, SW OF UNIT 1 REACTOR	15% SODIUM HYPO-CHLORITE SOLUTION	88,000			UEHLING MERCURY LEVEL INDICATOR	CATHODIC PROTEC-TION, COATED, LINED	D6, D22, D25, D33, D34
S6	1LWE16	D3	NRLWDS NO. 1 MIX TANK	FIBERGLASS	YARD N OF CIRC WATER BLDG (CHEM TREATMENT)	PROCESS WASTE-WATER	3,000	CONCRETE BLDG WITH DIVERSION TO NRLWDS; CONCRETE FLOOR	N/A	N/A	INSIDE FRP	D6, D7, D9, D16, D19, D20
S7	2CPE38	D3	CAUSTIC STORAGE TANK NO. 1	LINED STEEL	UNIT 2 TURBINE BLDG, EL 88'	50% SODIUM HYDROXIDE	2,250	CAUSTIC RESISTANT CONCRETE DIKE/FLOOR WITH DIVER- SION TO OIL/WATER SEPARATORS (S68, S69, S137)	8,000 (COMMON)	SIGHT GLASS, LOCAL LEVEL INDICATOR, H/L ALARM	INSIDE, COATED, LINED	D6, D7, D9, D16, D17, D18, D19, D20
S8	2CPE39	D3	CAUSTIC STORAGE TANK NO. 2	LINED STEEL	UNIT 2 TURBINE BLDG, EL 88'	50% SODIUM HYDROXIDE	2,250			SIGHT GLASS, LOCAL LEVEL INDICATOR, H/L ALARM	INSIDE, COATED, LINED	D6, D7, D9, D16, D17, D18, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S9	1DFE13	E2	MAIN FUEL OIL STORAGE TANK	STEEL	E OF COOLING WATER INTAKE	NO. 2 FUEL OIL	840,000	GRAVEL DIKE W/ IMPERMEA-BLE MEMBRANE LINER; CONCRETE/ MEMBRANE FLOOR	1,435,083	LEVEL INDICATOR	CATHODIC PROTEC-TION, PAINTED	D22, D25, D26, D33, D34
S10	1CPE42	E3	LOW CONDUC-TIVITY WASTE TANK	COATED CONCRETE	YARD - NO. 1 COND POLISHING HOUSE BLDG, UNDERGROUND	PROCESS WASTE-WATER	62,000	HOUSEKEEPING; OVERFLOW PROCESSED & RECYCLED; CONCRETE FLOOR	N/A	H/L ALARM	INSIDE, COATED	D16, D17, D18, D19, D20
S11	1CPE43	E3	HIGH CONDUC-TIVITY WASTE TANK	COATED CONCRETE	YARD - NO. 1 COND POLISHING HOUSE BLDG, UNDERGROUND	PROCESS WASTE-WATER	35,500	HOUSEKEEPING; DIVERSION TO NRLWDS CHEM WASTE TANK; CONCRETE FLOOR	N/A	ALARM	INSIDE, COATED	D16, D17, D18, D19, D20
S12	1CPE52	E3	RUPTURE DISC WASTE TANK	COATED CONCRETE	YARD - NO. 1 COND POLISHING HOUSE BLDG, UNDERGROUND	PROCESS WASTE-WATER	3,500	HOUSEKEEPING; DIVERSION TO ITEM S11; CONCRETE FLOOR	N/A	ALARM, LEVEL INDICATOR	INSIDE, COATED	D16, D19, D20
S13	2CPE45	E3	LOW CONDUC-TIVITY WASTE TANK	COATED CONCRETE	YARD - NO. 2 COND POLISHING HOUSE BLDG, UNDERGROUND	PROCESS WASTE-WATER	62,000	HOUSEKEEPING; OVERFLOW PROCESSED & RECYCLED; CONCRETE FLOOR	N/A	H/L ALARM	INSIDE, COATED	D16, D17, D18, D19, D20
S14	2CPE46	E3	HIGH CONDUC-TIVITY WASTE TANK	COATED CONCRETE	YARD - NO. 2 COND POLISHING HOUSE BLDG, UNDERGROUND	PROCESS WASTE-WATER	35,500	HOUSEKEEPING; DIVERSION TO NRLWDS CHEM WASTE TANK; CONCRETE FLOOR	N/A	ALARM	INSIDE, COATED	D16, D17, D18,D19, D20
S15	2CPE49	E3	RUPTURE DISC WASTE TANK	COATED CONCRETE	YARD - NO. 2 COND POLISHING HOUSE BLDG, UNDERGROUND	PROCESS WASTE-WATER	3,500	HOUSEKEEPING; DIVERSION TO ITEM NO. S14; CONCRETE FLOOR	N/A	ALARM, LEVEL INDICATOR	INSIDE, COATED	D16, D19, D20
S16	1CFE13	D3	AMMONIA SOLUTION TANK	STEEL	UNIT 1 TURBINE BLDG, EL 100'	<28% AMMONIUM HYDROXIDE SOLUTION	250	CONCRETE CURBING/ FLOOR AND DIVERSION TO CHEM WASTE TANK (S26)	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S17	2CFE13	D3	AMMONIA SOLUTION TANK	STEEL	UNIT 1 TURBINE BLDG, EL 100'	<28% AMMONIUM HYDROXIDE SOLUTION	250	CONCRETE CURBING/ FLOOR AND DIVERSION TO CHEM WASTE TANK (S26)	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20
S18	1CFE24	D3	AMMONIA STORAGE TANK	STEEL	UNIT 1 TURBINE BLDG, EL 120'	<28% AMMONIUM HYDROXIDE SOLUTION	3,500	CONCRETE CURBING/ FLOOR AND DIVERSION TO CHEM WASTE TANK (S26)	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20, D22, D80, D81
S19		D3	BULK HYDRAZINE STORAGE TANK	POLY	UNIT 1 TURBINE BLDG, EL 122'	5-35% HYDRAZINE SOLUTION	300	CONCRETE CURBING/ FLOOR AND DIVERSION TO CHEM WASTE TANK (S26)	N/A	TRANSLU-CENT TANK	INSIDE	D7, D9, D16, D19, D20
S20	1CFE14	D3	HYDRAZINE SOLUTION TANK	STEEL	UNIT 1 TURBINE BLDG, EL 100'	5-35% HYDRAZINE SOLUTION	250	CONCRETE CURBING/ FLOOR AND DIVERSION TO CHEM WASTE TANK (S26)	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20
S21	2CFE14	D3	HYDRAZINE SOLUTION TANK	STEEL	UNIT 1 TURBINE BLDG, EL 100'	5-35% HYDRAZINE SOLUTION	250	CONCRETE CURBING/ FLOOR AND DIVERSION TO CHEM WASTE TANK (S26)	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20
S22		D3	AUX CHEM MIX TANK (UNIT 1)	STEEL	UNIT 1 TURBINE BLDG, EL 100'	REMOVED FROM SERVICE						D6, D7, D9, D16, D19, D20
S23		D3	AUX CHEM MIX TANK (UNIT 2)	STEEL	UNIT 2 TURBINE BLDG, EL 100'	REMOVED FROM SERVICE						D7, D9, D16, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.*[1]
S24	1TLE18	D3	TURBINE LUBE OIL RESERVOIR	STEEL	UNIT 1 TURBINE BLDG, EL 120'	PETROLEUM LUBE OIL	18,000	CONCRETE DIKE/FLOOR & DIVERSION TO OIL/WATER SEPARATOR (S68)	32,700	LEVEL INDICATOR	INSIDE, PAINTED	D7, D9, D16, D19, D20
S25	2TLE18	D3	TURBINE LUBE OIL RESERVOIR	STEEL	UNIT 2 TURBINE BLDG, EL 120'	PETROLEUM LUBE OIL	18,000	CONCRETE DIKE/FLOOR & DIVERSION TO OIL/WATER SEPARATOR (S69)	32,700	LEVEL INDICATOR	INSIDE, PAINTED	D7, D9, D16, D19, D20
S26	1DME47	D3	CHEM WASTE TANK	RUBBER LINED STEEL	UNIT 1 TURBINE BLDG, EL 88'	PROCESS WASTE-WATER	2,250	HOUSEKEEPING; CONCRETE CURBING/ FLOOR AND DIVERSION TO NRLWDS (S1)	N/A	H/L ALARM	INSIDE, LINED	D6, D7, D9, D16, D17, D18, D19, D20
S27	1PLE12 1PLE22	D3	STEAM GENERATOR FEED PUMP AND TURBINE LUBE OIL TANK	STEEL	UNIT 1 TURBINE BLDG, EL 100'	PETROLEUM LUBE OIL	550 (each)	CONCRETE DIKE/FLOOR AND NO. 2 OIL/WATER SEPARATOR (S69)	2,000	SIGHT GLASS	INSIDE, PAINTED	D7, D9, D16, D19, D20
S28	2PLE12 2PLE22	D3	STEAM GENERATOR FEED PUMP AND TURBINE LUBE OIL TANK	STEEL	UNIT 2 TURBINE BLDG, EL 100'	PETROLEUM LUBE OIL	1,100 (each)	CONCRETE DIKE/FLOOR AND NO. 2 OIL/WATER SEPARATOR (S69)	2,000	SIGHT GLASS	INSIDE, PAINTED	D7, D9, D16, D19, D20
S29	1TLE30	D3	TURBINE OIL RECEIVING & MAKE-UP TANK	STEEL	UNIT 1 TURBINE BLDG, EL 88'	PETROLEUM LUBE OIL	6,000	CONCRETE DIKE/FLOOR AND NO. 1 OIL/WATER SEPARATOR (S68)	8,500	LEVEL INDICATOR	INSIDE, PAINTED	D7, D9, D16, D17, D18, D19, D20, D26

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S30	1DME30	D3	CAUSTIC STORAGE TANK	EPOXY ENAMEL COATED STEEL	UNIT 1 TURBINE BLDG, EL 88'	50% SODIUM HYDROXIDE SOLUTION	4,000	CHEMICALLY RESISTANT CONCRETE DIKE/FLOOR; DIVERSION TO CHEM WASTE TANK (S26)	11,500 (COMMON)	LEVEL INDICATOR	INSIDE, LINED; PAINTED	D6, D7, D9, D16, D17, D18, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.* [1]
S31	1DME31	D3	CAUSTIC STORAGE TANK	EPOXY ENAMEL COATED STEEL	UNIT 1 TURBINE BLDG, EL 88'	50% SODIUM HYDROXIDE SOLUTION	4,000			LEVEL INDICATOR	INSIDE, LINED, PAINTED	D6, D7, D9, D16, D17, D18, D19, D20S321DME 28D3SULFURIC ACID STORAGE TANKBAKED PHENOLIC RESIN COATED STEELUNIT 1 TURBINE BLDG, EL 88'98% SULFURIC ACID4,000 CHEMICALLY RESISTANT DIKE WITH BRICK FLOOR LINING; DIVERSION TO CHEM WASTE TANK (S26)9,400 (COMMON) LEVEL INDICATORINSIDE, LINED, PAINTEDD6, D7, D9, D16, D17, D18, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S33	1DME29	D3	SULFURIC ACID STORAGE TANK	BAKED PHENOLIC RESIN COATED STEEL	UNIT 1 TURBINE BLDG, EL 88'	98% SULFURIC ACID	4,000			LEVEL INDICATOR	INSIDE: LINED, PAINTED	D6, D7, D9, D16, D17, D18, D19, D20
S34	1TLE6	D3	TURBINE LUBE OIL STORAGE TANK	STEEL	UNIT 1 TURBINE BLDG, EL 88'	PETROLEUM LUBE OIL	14,000	CONCRETE DIKE/FLOOR AND DIVERSION TO OIL/WATER SEPARATOR (S68)	44,000 (COMMON)	SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
S35	1TLE7	D3	TURBINE LUBE OIL STORAGE TANK	STEEL	UNIT 1 TURBINE BLDG, EL 88'	PETROLEUM LUBE OIL	14,000			SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
S36	2TLE6	D3	TURBINE LUBE OIL STORAGE TANK	STEEL	UNIT 2 TURBINE BLDG, EL 88'	PETROLEUM LUBE OIL	14,000	CONCRETE DIKE/FLOOR AND DIVERSION TO OIL/WATER SEPARATOR (S69)	44,000 (COMMON)	SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
S37	2TLE7	D3	TURBINE LUBE OIL STORAGE TANK	STEEL	UNIT 2 TURBINE BLDG, EL 88'	PETROLEUM LUBE OIL	14,000			SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S38	2SLE1	D3	2 MN TURB LO SEAL OIL TANK	STEEL	UNIT 2 TURBINE BLDG, EL 100'	PETROLEUM LUBE OIL	500	HOUSEKEEPING; DIVERSION TO NO. 2 OIL/WATER SKIMMER: CONCRETE FLOOR (S69)	N/A	SIGHT GLASS, HI & LO LEVEL ALARM	INSIDE	D7, D9, D16, D19, D20S392CPE 36D3SULFURIC ACID STORAGE TANKLINED STEELUNIT 2 TURBINE BLDG. EL. 88'98% SULFURIC ACID2,250 ACID RESISTANT CONCRETE DIKE/FLOOR : DIVERSION TO OIL/WATER SEPARATORS (S68, S69, S137)6,500 (COMMON) LOCAL LEVEL INDICATOR, H/L ALARMINSIDE, PAINTEDD6, D7, D9, D16, D17, D18, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO. [1]
S40	2CPE37	D3	SULFURIC ACID STORAGE TANK	LINED STEEL	UNIT 2 TURBINE BLDG, EL. 88'	98% SULFURIC ACID	2,250			LOCAL LEVEL INDICATOR, H/L ALARM	INSIDE, PAINTED	D6, D7, D9, D16, D17, D18, D19, D20
S41		D3	CORROSION INHIBITOR (CI-50)	STEEL	UNIT 2 TURBINE BLDG, EL. 88'	EMPTY	2,000	CONTAINMENT CONCRETE DIKE/FLOOR AND DIVERSION TO OIL/WATER SEPARATOR (S69)	N/A (CURRENTLY NOT IN SERVICE)	SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20
S42		D3	CORROSION INHIBITOR (CI-50)	STEEL	UNIT 2 TURBINE BLDG, EL. 88'	EMPTY	2,000	CONTAINMENT CONCRETE DIKE/FLOOR AND DIVERSION TO OIL/WATER SEPARATOR (S69)	N/A (CURRENTLY NOT IN SERVICE)	SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20
S43		D3	CORROSION INHIBITOR (CI-50)	STEEL	UNIT 2 TURBINE BLDG, EL. 88'	EMPTY	2,000	CONTAINMENT CONCRETE DIKE/FLOOR AND DIVERSION TO OIL/WATER SEPARATOR (S69)	N/A (CURRENTLY NOT IN SERVICE)	SIGHT GLASS	INSIDE	D7, D9, D16, D17, D18, D19, D20
S44	1DFE3	D3	DIESEL GEN FUEL OIL DAY TANK	STEEL	UNIT 1 AUX BLDG, EL. 122'	NO. 2 FUEL OIL	550	CONCRETE CURB/FLOOR	3,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20
S45	1DFE4	D3	DIESEL GEN FUEL OIL DAY TANK	STEEL	UNIT 1 AUX BLDG, EL. 122'	NO. 2 FUEL OIL	550	CONCRETE CURB/FLOOR	3,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S46	1DFE5	D3	DIESEL GEN FUEL OIL DAY TANK	STEEL	UNIT 1 AUX BLDG. EL 122'	NO. 2 FUEL OIL	550	CONCRETE CURB/FLOOR	3,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20
S47	2DFE3	D3	DIESEL GEN FUEL OIL DAY TANK	STEEL	UNIT 2 AUX BLDG. EL 122'	NO. 2 FUEL OIL	550	CONCRETE CURB/FLOOR	3,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20
S48	2DFE4	D3	DIESEL GEN FUEL OIL DAY TANK	STEEL	UNIT 2 AUX BLDG. EL 122'	NO. 2 FUEL OIL	550	CONCRETE CURB/FLOOR	3,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20
S49	2DFE5	D3	DIESEL GEN FUEL OIL DAY TANK	STEEL	UNIT 2 AUX BLDG. EL 122'	NO. 2 FUEL OIL	550	CONCRETE CURB/FLOOR	3,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20
S50	1DFE1	D3	DIESEL FUEL OIL STORAGE TANK	STEEL	UNIT 1 AUX BLDG. EL 84'	NO. 2 FUEL OIL	30,000	CONCRETE ROOM ENCLOSES EACH TANK	117,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D17, D18, D19, D20, D22, D23, D26
S51	1DFE2	D3	DIESEL FUEL OIL STORAGE TANK	STEEL	UNIT 1 AUX BLDG. EL 84'	NO. 2 FUEL OIL	30,000	CONCRETE ROOM ENCLOSES EACH TANK	117,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D17, D18, D19, D20, D22, D23, D26

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S52	2DFE1	D3	DIESEL FUEL OIL STORAGE TANK	STEEL	UNIT 2 AUX BLDG. EL. 84'	NO. 2 FUEL OIL	30,000	CONCRETE ROOM ENCLOSES EACH TANK	117,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D17, D18, D19, D20, D22, D23, D26
S53	2DFE2	D3	DIESEL FUEL OIL STORAGE TANK	STEEL	UNIT 2 AUX BLDG. EL. 84'	NO. 2 FUEL OIL	30,000	CONCRETE ROOM ENCLOSES EACH TANK	117,000	LEVEL INDICATOR	INSIDE	D7, D9, D16, D17, D18, D19, D20, D22, D23, D26
S54	1CCE1	D3	POTASSIUM DICHROMATE MIXING/ STORAGE TANK	STEEL	UNIT 1 AUX BLDG. EL. 122'	POTASSIUM DICHRO-MATE	2,000	HOUSEKEEPING; CONCRETE CURBING/ FLOOR; DIVERSION TO RADWASTE TREATMENT SYSTEM	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20
S55	2CCE1	D3	POTASSIUM DICHROMATE MIXING/ STORAGE TANK	STEEL	UNIT 2 AUX BLDG. EL. 122'	POTASSIUM DICHRO-MATE	2,000	HOUSEKEEPING; CONCRETE CURBING/ FLOOR; DIVERSION TO RADWASTE TREATMENT SYSTEM	N/A	SIGHT GLASS	INSIDE	D7, D9, D16, D19, D20
S56	RESERVED											
S57 S58 S59	1MNGENXFRPHA 1MNGENXFRPHB 1MNGENXFRPHC	E3	UNIT 1 MAIN TRANSFORMER (3 XFMRS)	STEEL HOUSING	SE CORNER OF NO. 1 TURBINE BLDG	DIELECTRIC FLUID	10,470 (each)	HOUSEKEEPING; CONCRETE PAD AND CURBING WITH CRUSHED ROCK BOTTOM; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR (S68)	N/A	LEVEL INDICATOR; LEVEL ALARM	PAINTED	D2

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S60 S61 S62	2MNGENXFRPHA 2MNGENXFRPHB 2MNGENXFRPHC	E4	UNIT 2 MAIN TRANSFORMER (3 XFMRS)	STEEL HOUSING	NE CORNER OF NO. 2 TURBINE BLDG	DIELECTRIC FLUID	12,253 (each)	HOUSEKEEPING; CONCRETE PAD AND CURBING WITH CRUSHED ROCK BOTTOM; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR (S69)	N/A	LEVEL INDICATOR; LEVEL ALARM	PAINTED	D2
S63	1XFR1A&BGD	E3	NO. 1 AUX POWER TRANS- FORMER	STEEL HOUSING	SE CORNER OF NO. 1 TURBINE BLDG	DIELECTRIC FLUID	10,500	HOUSEKEEPING; CONCRETE CURBING WITH CRUSHED ROCK BOTTOM; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR (S68)	N/A	LEVEL INDICATOR; LEVEL ALARM	PAINTED	D2
S64	2XFR2A&BGD	E4	NO. 2 AUX POWER TRANS- FORMER	STEEL HOUSING	NE CORNER OF NO. 2 TURBINE BLDG	DIELECTRIC FLUID	10,500	HOUSEKEEPING; CONCRETE CURBING WITH CRUSHED ROCK BOTTOM; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR (S69)	N/A	LEVEL INDICATOR; LEVEL ALARM	PAINTED	D2
S65	T1	F4	NO. 1 STATION POWER TRANS- FORMER	STEEL HOUSING	NE SECTION OF SWITCH YARD	DIELECTRIC FLUID	25,600	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR (S68)	N/A	LEVEL INDICATOR; LEVEL ALARM	PAINTED	D2
S66	T2	E4	NO. 2 STATION POWER TRANS- FORMER	STEEL HOUSING	NW SECTION OF SWITCH YARD	DIELECTRIC FLUID	25,600	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR (S69)	N/A	LEVEL INDICATOR; LEVEL ALARM	PAINTED	D2
S67	1CFE21	D4	HOUSE HEATING BOILER HYDRAZINE DAY TANK	STEEL	HOUSE HEATING BOILER BLDG	HYDRAZINE	50	BLDG CONTAIN- MENT WITH CONCRETE FLOOR; HOUSEKEEPING; NRLWDS (S1)	N/A	N/A	INSIDE	D16, D19, D20
S68		E3	NO. 1 OIL/ WATER SKIM TANK NJPDES TREATMENT SYSTEM	CONCRETE	SW CORNER OF SWITCH YARD	VARIOUS OIL/WATER MIXTURES	20,000	HOUSEKEEPING	N/A	N/A	N/A	D16, D17, D18

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S69		E4	NO. 2 OIL/ WATER SKIM TANK NJPDES TREATMENT SYSTEM	CONCRETE	NW CORNER OF SWITCH YARD	VARIOUS OIL/WATER MIXTURES	20,000	HOUSEKEEPING	N/A	N/A	N/A	D16, D17, D18
S70		D4	NO. 3 OIL/ WATER SKIM TANK NJPDES TREATMENT SYSTEM	CONCRETE	W OF FIRE PUMP HOUSE	VARIOUS OIL/WATER MIXTURES	3,000	HOUSEKEEPING	N/A	N/A	N/A	D14, D15, D16, D17, D18
S71		D4	FUEL OIL STORAGE TANK	STEEL	AUX BOILER BLDG	FUEL OIL	300	BLDG CONTAIN- MENT WITH CONCRETE CURBING/PAD; DIVERSION TO NO. 3 OIL/WATER SKIMMER (ITEM NO. S70)	400	LEVEL INDICATOR	INSIDE	D16, D19, D20
S72		D4	FUEL OIL STORAGE TANK	STEEL	AUX BOILER BLDG	FUEL OIL	300	BLDG CONTAIN- MENT WITH CONCRETE CURBING/PAD; DIVERSION TO NO. 3 OIL/WATER SKIMMER (ITEM NO. S70)	400	LEVEL INDICATOR	INSIDE	D16, D19, D20
S73		D4	FUEL OIL STORAGE TANK	STEEL	AUX BOILER BLDG	FUEL OIL	300	BLDG CONTAIN- MENT WITH CONCRETE CURBING/PAD; DIVERSION TO NO. 3 OIL/WATER SKIMMER (ITEM NO. S70)	400	LEVEL INDICATOR	INSIDE	D16, D19, D20
S74		D4	FUEL OIL STORAGE TANK	STEEL	INSIDE FIRE PUMP HOUSE	FUEL OIL	350	BLDG CONTAIN- MENT WITH CONCRETE FLOOR; DIVERSION TO NO. 3 OIL/WATER SKIMMER (ITEM NO. S70)	N/A	SIGHT GLASS	INSIDE	D16, D19, D20
S75		D4	FUEL OIL STORAGE TANK	STEEL	INSIDE FIRE PUMP HOUSE	FUEL OIL	350	BLDG CONTAIN- MENT WITH CONCRETE FLOOR; DIVERSION TO NO. 3 OIL/WATER SKIMMER (ITEM NO. S70)	N/A	SIGHT GLASS	INSIDE	D16, D19, D20
S76 S77	1LWE18 1LWE20	D3	NRLWDS POLYMER MIX & FEED TANKS	STAINLESS STEEL	NRLWDS CHEM TREATMENT BLDG	COAGU-LANT (PRES-ENTLY EMPTY)	250 (each)	HOUSEKEEPING; BLDG CONTAIN- MENT WITH CONCRETE FLOOR; DIVERSION TO NRLWDS (S1)	N/A	LEVEL INDICATOR	INSIDE	D16, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S78	1LWE15	D3	NRLWDS CAUSTIC STORAGE TANK	FRP - DURAKANE 411	NRLWDS CHEM TREATMENT BLDG	50% SODIUM HYDROXIDE SOLUTION	5,000	CONCRETE DIKE/FLOOR; DIVERSION TO NRLWDS (S1)	5,900	LEVEL INDICATOR	INSIDE	D6, D16, D17, D18, D19, D20, D119
S79 S80	1CSE5 2CSE5	D3	SPRAY ADDITIVE TANKS (SODIUM HYDROXIDE)	STEEL	UNITS 1 AND 2 AUX BLDG, EL. 84'	SODIUM HYDROXIDE	4,000 (each)	HOUSEKEEPING; CONCRETE BLDG AND FLOOR	N/A	ALARM AND LEVEL INDICATOR	PAINTED, LINED	D7, D9, D16, D17, D18, D19, D20
S81 thru S87	TANK TRUCK UNLOADING AREAS, SEE TABLE II-2A											D93
S88 thru S91	RESERVED											
S92	1XFR11SD	E3	NO. 11 STATION POWER TRANS-FORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	4,700	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	D2
S93	1XFR12SD	E3	NO. 12 STATION POWER TRANS-FORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	6,350	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO SKIM TANK NO. 1 THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	D2
S94	2XFR21SD	E3	NO. 21 STATION POWER TRANS-FORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	4,700	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO SKIM TANK NO. 1 THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	D2
S95	2XFR22SD	E3	NO. 22 STATION POWER TRANS-FORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	6,350	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO SKIM TANK NO. 1 THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	D2

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S96	UNASSIGNED	E3	NO. 14 STATION POWER TRANSFORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	D2
S97	UNASSIGNED	E4	NO. 24 STATION POWER TRANSFORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	D2
S98 thru S103		E3	SUBSTATION NO. 1 (6 XFMRS)	STEEL HOUSING	W OF BEACH HOUSE	REMOVED FROM SERVICE						D2
S104 thru S110		F4	SUBSTATION NO. 2 (7 XFMRS)	STEEL HOUSING	E OF OLD GUARD HOUSE (SECURITY TRAINING BLDG)	DIELECTRIC FLUID	< 1,000	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
S111		F3	TRANSFORMER	STEEL HOUSING	E OF FORMER JET FUEL TANK	REMOVED FROM SERVICE						D2
S112		G3	TRANSFORMER	STEEL HOUSING	E OF SWITCHING TRAILER	DIELECTRIC FLUID	1,678	HOUSEKEEPING; TIMBER CRIBBING	N/A	LEVEL INDICATOR	PAINTED	D2
S113		F3	TRANSFORMER 13.2 KV	STEEL HOUSING	N OF FORMER JET FUEL TANK	DIELECTRIC FLUID	< 1,000	HOUSEKEEPING; ASPHALT PAD	N/A	LEVEL INDICATOR	PAINTED	D2
S114	9YFXF20	F5	TRANSFORMER	STEEL HOUSING	N OF IN-PROCESSING FACILITY	DIELECTRIC FLUID	< 1,000	HOUSEKEEPING; UNDERSIZED CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
S115 thru S124		D4	SUBSTATION NO. 5 (10 XFMRS)	STEEL HOUSING	N OF UNIT 2 FUEL HANDLING BLDG	REMOVED FROM SERVICE						D2
S125 thru S128		E4	SUBSTATION NO. 3 (4 XFMRS)	STEEL HOUSING	MAIN PARKING LOT OPPOSITE MAIN GUARD-HOUSE	DIELECTRIC FLUID	< 1,000	HOUSEKEEPING; ASPHALT PAD	N/A	LEVEL INDICATOR	PAINTED	D2
S129	1CCE1	D3	NO. 1 COMPONENT COOLANT SYSTEM SURGE/MIX TANK	STEEL	UNIT 1 AUX BLDG. EL. 122'	POTASSIUM CHROMATE	2,000	HOUSEKEEPING; BLDG CONTAIN- MENT WITH CONCRETE FLOOR	N/A	ALARM	INSIDE	D7, D9, D16, D19, D20

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S130	2CCE1	D3	NO. 2 COMPONENT COOLANT SYSTEM SURGE TANK	STEEL	UNIT 2 AUX BLDG. EL. 122'	POTASSIUM CHROMATE	2,000	HOUSEKEEPING; BLDG CONTAIN- MENT WITH CONCRETE FLOOR	N/A	ALARM	INSIDE	D7, D9, D16, D19, D20
S131 thru S134	RESERVED											
S135	4SWGR4HC41GAG	D4	TRANSFORMER	STEEL HOUSING	N OF UNIT 2 REACTOR	DIELECTRIC FLUID	< 1,000	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
S136		F3	TRANSFORMER	STEEL HOUSING	N OF FORMER NUCLEAR SERVICE DEPT TRAILER	REMOVED FROM SERVICE						D2
S137	1BDE16 1BDE17 1BDE23 1BDE24	E3	OIL/WATER SEPARATOR SYSTEM NJPDES	STEEL	EAST OF OLD GUARDHOUSE AND NORTH OF OIL/WATER SEPARATOR	WASTE-WATER (OIL/WATER MIX)	2-40,000 GAL OIL/WATER SEPARATORS (1BDE16 & 17) 1-500 GAL "USED OIL" STORAGE TANK (1BDE24); 1-5,000 GAL SLUDGE STORAGE TANK (1BDE23)	CONCRETE CONTAINMENT	A CONTAIN-MENT CHAM- BER, 98' X 36' X 28', FOR 1BDE16 & 17; A COMMON CONTAIN- MENT, 6,000 GAL, FOR 1BDE23 & 24	AUDIBLE/ VISUAL ALARMS	CATHODIC PROTEC- TION, PAINTED	D16, D17, D18
S138		D2	PROPYLENE GLYCOL STORAGE TANK	STEEL	E OF CWS HOUSE HEATING BOILER	PROPYLENE GLYCOL	5,200	STEEL	5,543	AUDIBLE/ VISUAL H/L ALARM	UNDER-COVER	
S139	UNASSIGNED	E4	SUBSTATION NO. 4 TRANS-FORMERS - GROUP 1 (3 XFMRS)	STEEL HOUSING	WEST OF WAREHOUSE 2	DIELECTRIC FLUID	165	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
S140	UNASSIGNED	E4	SUBSTATION NO. 4 TRANS-FORMERS - GROUP 2 (3 XFMRS)	STEEL HOUSING	WEST OF WAREHOUSE 2	DIELECTRIC FLUID	121	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
S141	UNASSIGNED	E4	SUBSTATION NO. 4 TRANS-FORMERS - GROUP 3 (3 XFMRS)	STEEL HOUSING	WEST OF WAREHOUSE 2	REMOVED FROM SERVICE						
S142	RESERVED											
S143	RESERVED											

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S144	UNASSIGNED	E3	NO. 23 STATION POWER TRANSFORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S145	UNASSIGNED	E3	NO. 13 STATION POWER TRANSFORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S146	UNASSIGNED	E3	NO. 4 STATION POWER TRANS-FORMER	STEEL HOUSING	SOUTH SECTION OF SWITCH-YARD	DIELECTRIC FLUID	19,169	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S147	UNASSIGNED	F3	NO. 3 STATION POWER TRANS-FORMER	STEEL HOUSING	SOUTH SECTION OF SWITCH-YARD	DIELECTRIC FLUID	26,100	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S148	UNASSIGNED	E3	SPARE STATION POWER TRANSFORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S149	UNASSIGNED	E3	NO. 4 STATION LIGHT AND POWER TRANS-FORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S150	UNASSIGNED	F3	NO. 4B STATION LIGHT AND POWER TRANS-FORMER	STEEL HOUSING	SOUTH SECTION OF SWITCH-YARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S151	UNASSIGNED	E3	NO. 3B STATION LIGHT AND POWER TRANS-FORMER	STEEL HOUSING	SOUTH SECTION OF SWITCH-YARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
S152	UNASSIGNED	E3	32837-750 KVA TRANSFORMER	STEEL HOUSING	MID-SECTION OF SWITCH-YARD	DIELECTRIC FLUID	430	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S153	UNASSIGNED	E3	NO. 2 SWITCHYARD TRANSFORMER	STEEL HOUSING	MID-SECTION OF SWITCH-YARD	DIELECTRIC FLUID	237	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S154	UNASSIGNED	E3	NO. 3 STATION LIGHT AND POWER TRANS-FORMER	STEEL HOUSING	WEST SECTION OF SWITCH-YARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A		PAINTED	
S155	4SWGR3X	C3	SUBSTATION NO. 3 TRANSFORMER	STEEL HOUSING	NW OF CONTROLLED FACILITIES BLDG A	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
S156	UNASSIGNED	F3	TEMPORARY POWER TRANSFORMER	STEEL HOUSING	E OF NUCLEAR SERVICE DEPT TRAILER	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
S157	UNASSIGNED	E3	TRANSFORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	
S158	UNASSIGNED	E3	TRANSFORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	5,930	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	
S159	UNASSIGNED	E3	TRANSFORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	10,470	HOUSEKEEPING; CONCRETE PAD; DIVERSION TO SKIM TANK THEN OIL/WATER SEPARATOR	N/A	LEVEL INDICATOR	PAINTED	
S160		F7	"USED OIL" STORAGE TANK	STEEL	INSIDE COMBO SHOP (SH5)	USED AND/OR SURPLUS OILS	3,500	BUILDING CONTAINMENT	> 3,700	VISUAL LEVEL INDICATOR	NONE	D119

ITEM NUMBERS AND GRID LOCATIONS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

TABLE II-1A
SALEM GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

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1. Document Nos. D27, D43, D65, D66, D74, D78, D82, D88, D91, D95, D96, and D97 apply to all Item Nos. in this table.

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.*[1]
H1	0AT500	D6	CIRC WATER CAUSTIC STORAGE TANK	LINED CARBON STEEL	W-SW OF COOLING TOWER	50% SODIUM HYDROXIDE SOLUTION	21,154	CONCRETE DIKE AND FLOOR; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM (H12)	26,145	UNISONIC LEVEL INDICATOR, H/L ALARM	LINED	D6, D23, D33, D34, D36, D38, D42
H2	0BT501	D6	SODIUM HYPOCHLO-RITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	W-SW OF COOLING TOWER	15% SODIUM HYPO-CHLORITE SOLUTION	30,000	CONCRETE DIKE AND FLOOR; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM (H12)	72,140 (COMMON)	LEVEL INDICATOR, H/L ALARM	LINED	D6, D23, D33, D34, D36
H3	0CT501	D6	SODIUM HYPOCHLO-RITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	W-SW OF COOLING TOWER	15% SODIUM HYPO-CHLORITE SOLUTION	30,000			LEVEL INDICATOR, H/L ALARM	LINED	D6, D23, D33, D34
H4	0ET501	B5	SODIUM HYPOCHLO-RITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	E OF SERVICE WATER INTAKE STRUCTURE	15% SODIUM HYPO-CHLORITE SOLUTION	15,254	CONCRETE DIKE AND FLOOR; DIVERSION TO DSN 463A	19,907 (COMMON)	LEVEL INDICATOR, H/L ALARM	LINED	D6, D23, D33, D34
H5	0FT501	B5	SODIUM HYPOCHLO-RITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	E OF SERVICE WATER INTAKE STRUCTURE	15% SODIUM HYPO-CHLORITE SOLUTION	15,254			LEVEL INDICATOR, H/L ALARM	LINED	D6, D23, D33, D34
H6	0OT140	D5	CAUSTIC STORAGE TANK	STEEL	TURBINE BLDG, EL 54'	50% SODIUM HYDROXIDE SOLUTION	16,000	CONCRETE DIKE AND FLOOR; DIVERSION TO LRWTS	23,500	UNISONIC LEVEL INDICATOR, HIGH AND LOW LEVEL ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20, D23
H7	0OT141	D5	SULFURIC ACID STORAGE TANK	STEEL	TURBINE BLDG, EL 54'	SULFURIC ACID	16,000	CONCRETE DIKE AND FLOOR; DIVERSION TO LRWTS	23,500	UNISONIC LEVEL INDICATOR, HIGH AND LOW LEVEL ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20, D23

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
H8	00T516	B6	MAIN FUEL OIL STORAGE TANK	STEEL	N OF HOPE CREEK BARGE SLIP	NO. 2 FUEL OIL	1,000,000	EARTH W/ CLAY LINER & CONCRETE PAD; DIVERSION TO LIFT STATION 1B (NJPDES LVOWS) (H12)	1,281,000	SHAND & JURS AUTOMATIC TANK GAUGE, H/L ALARM	CATHODIC PROTECTION, PAINTED	D1, D26, D33, D34
H9	00T520	D6	HYDRAZINE FEED TANK	STAINLESS STEEL	AUX BOILER BLDG, EL. 102'	HYDRAZINE	25	HOUSEKEEPING; CONCRETE CURBING AND FLOOR; DIVERSION TO LIFT STATION 1C (NJPDES LVOWS) (H12)	N/A	SIGHT GLASS	INSIDE	D16, D19, D20
H10	00T527	C6	AUX BOILER FUEL OIL DAY TANK	STEEL	NW OF AUX BOILER BLDG	NO. 2 FUEL OIL	18,000	CONCRETE DIKE AND FLOOR; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM (H12)	25,559	SIGHT GLASS, H/L ALARM	CATHODIC PROTECTION, PAINTED	D26, D31, D33, D34
H11	00T565	C6	DIESEL FUEL OIL DAY TANK	STEEL	OUTSIDE FIRE PUMP HOUSE	NO. 2 FUEL OIL	300	BUILDING AND CONCRETE FLOOR	380	SIGHT GLASS	INSIDE, PAINTED	D80
H12	00T547	B6	OILY WATER SLUDGE TANK NJPDES TREATMENT SYSTEM	STEEL	W OF COOLING TOWER	USED OIL	2,000	CONCRETE DIKE AND FLOOR; DIVERSION TO COOLING TOWER BLOWDOWN	15,700	LEVEL INDICATOR	PAINTED	D16, D19, D20
H13	00T530	C6	DIESEL FUEL OIL DAY TANK	STEEL	OUTSIDE FIRE PUMP HOUSE	REMOVED FROM SERVICE						D80
H14	00T750	D6	AMMONIUM BISULFITE STORAGE TANK	COATED FRP	W-SW OF COOLING TOWER	70% AMMONIUM BISULFITE SOLUTION	5,000	CONCRETE DIKE AND FLOOR; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM (H12)	6,359	REMOTE UNISONIC LEVEL INDICATOR, SIGHT GLASS, REMOTE H/L ALARM	COATED	D22, D23, D25, D33, D34, D38, D40, D42
H15	1OT101	D5	MAIN TURBINE LUBE OIL RESERVOIR	STEEL	TURBINE BLDG, EL. 102'	PETROLEUM OIL	12,275 (plus internal)	CONCRETE ROOM; DIVERSION TO LRWTS	26,800	LEVEL INDICATOR	INSIDE	D7, D9, D16, D19, D20

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
H16	1OT119	D5	TURBINE LUBE OIL STORAGE TANK	STEEL	TURBINE BLDG, EL 77'	PETROLEUM OIL	22,000	CONCRETE ROOM; DIVERSION TO LRWTS	43,500	SHAND & JURS LEVEL INDICATOR	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
H17	1OT119	D5	TURBINE LUBE OIL STORAGE TANK	STEEL	TURBINE BLDG, EL 77'	REMOVED FROM SERVICE						D6, D7, D9, D16, D17, D18, D19, D20
H18	1OT120	D5	TURBINE LUBE OIL RECEIVING TANK	STEEL	TURBINE BLDG, EL 77'	PETROLEUM OIL	22,000	CONCRETE ROOM; DIVERSION TO LRWTS	43,500	SHAND & JURS LEVEL INDICATOR	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
H19	1OT120	D5	TURBINE LUBE OIL RECEIVING TANK	STEEL	TURBINE BLDG, EL 77'	REMOVED FROM SERVICE						D6, D7, D9, D16, D17, D18, D19, D20
H20	0AT566	D4	GUARDHOUSE DIESEL GEN FUEL TANK	STEEL	EMERGENCY DIESEL GEN BLDG	PETROLEUM OIL	275	BUILDING AND CONCRETE FLOOR	530 (COMMON)	LEVEL INDICATOR	INSIDE	D16, D19, D20
H21	0BT566	D4	GUARDHOUSE DIESEL GEN FUEL TANK	STEEL	EMERGENCY DIESEL GEN BLDG	PETROLEUM OIL	275			LEVEL INDICATOR	INSIDE	D16, D19, D20

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.*[1]
H22	0OT122	D5	DEMINERAL-IZER REGENER-ANT WASTE TANK	STEEL	TURBINE BLDG. EL. 54'	PROCESS WASTE-WATER	50,000	CONCRETE DIKE AND FLOOR: DIVERSION TO LRWTS	59,000	LEVEL INDICATOR, ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H23	0OT521	D6	AMMONIA FEED TANK	STAINLESS STEEL	AUX BOILER BLDG. EL. 102'	AMMONIUM HYDROXIDE	50	HOUSEKEEPING: CONCRETE CURBING AND FLOOR: DIVERSION TO LIFT STATION 1C (NJPDES LVOWS) (H12)	N/A	SIGHT GLASS	INSIDE	D16, D19, D20
H24	0OT546	B6	"USED OIL" HOLDING TANK	STEEL	W OF COOLING TOWER	PROCESS WASTE-WATER	15,000	CONCRETE DIKE AND FLOOR; DIVERSION TO COOLING TOWER BLOWDOWN	15,700	LEVEL INDICATOR	PAINTED	D119
H25	1AT102	D5	REACTOR FEED PUMP TURBINE LUBE OIL RESERVOIR	STEEL	TURBINE BLDG. EL. 123'	TURBINE LUBE OIL	425	CURBED, CONCRETE ROOM, DIVERSION TO LRWTS	N/A	SIGHT GLASS	INSIDE	D16, D19, D20
H26	1AT403	C5	DIESEL FUEL OIL STORAGE TANK	STEEL	AUX BLDG. EL. 54'	NO. 2 FUEL OIL	26,500	COMPLETELY ENCLOSED IN CONCRETE ROOM; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM (H12)	88,400 (COMMON CONTAIN-MENT WITH ITEM NO. 29)	LEVEL INDICATOR, H/L ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
H27	1AT404	C5	DIESEL GEN FUEL OIL DAY TANK	STEEL	AUX BLDG DIESEL ROOM EL. 102'	NO. 2 FUEL OIL	550	HOUSEKEEPING: BUILDING CONTAINMENT AND CONCRETE FLOOR; DIVER- SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)	N/A	LEVEL INDICATOR, H/L ALARM	INSIDE	D16, D19, D20
H28	1BT102	D5	REACTOR FEED PUMP TURBINE LUBE OIL RESERVOIR	STEEL	TURBINE BLDG. EL. 123'	TURBINE LUBE OIL	425	CURBED, CONCRETE ROOM; DIVERSION TO LRWTS	N/A	SIGHT GLASS	INSIDE	D16, D19, D20

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO. [1]
H29	1BT403	C5	DIESEL FUEL OIL STORAGE TANK	STEEL	AUX BLDG, EL. 54'	NO. 2 FUEL OIL	26,500	COMPLETELY ENCLOSED IN CONCRETE ROOM; DIVER- SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)	88,400 (COMMON CONTAIN-MENT WITH ITEM NO. 26)	LEVEL INDICATOR, H/L ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
H30	1BT404	C5	DIESEL GEN FUEL OIL DAY TANK	STEEL	AUX BLDG DIESEL ROOM, EL. 102'	NO. 2 FUEL OIL	550	HOUSEKEEPING; BLDG CONTAIN-MENT AND CONCRETE FLOOR; DIVER-SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)	N/A	LEVEL INDICATOR, H/L ALARM	INSIDE	D16, D19, D20
H31	1CT102	D5	REACTOR FEED PUMP TURBINE LUBE OIL RESERVOIR	STEEL	TURBINE BLDG, EL. 123'	TURBINE LUBE OIL	425	CURBED, CONCRETE ROOM; DIVER- SION TO LRWTS	N/A	SIGHT GLASS	INSIDE	D16, D19, D20
H32	1CT403	C5	DIESEL FUEL OIL STORAGE TANK	STEEL	AUX BLDG, EL. 54'	NO. 2 FUEL OIL	26,500	COMPLETELY ENCLOSED IN CONCRETE ROOM; DIVER- SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)	88,400 (COMMON CONTAIN-MENT WITH ITEM NO. 34)	LEVEL INDICATOR, H/L ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26
H33	1CT404	C5	DIESEL GEN FUEL OIL DAY TANK	STEEL	AUX BLDG DIESEL ROOM, EL. 102'	NO. 2 FUEL OIL	550	HOUSEKEEPING; BLDG CONTAIN-MENT AND CONCRETE FLOOR; DIVER-SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)	N/A	LEVEL INDICATOR, H/L ALARM	INSIDE	D16, D19, D20
H34	1DT403	C5	DIESEL FUEL OIL STORAGE TANK	STEEL	AUX BLDG, EL. 54'	NO. 2 FUEL OIL	26,500	COMPLETELY ENCLOSED IN CONCRETE ROOM; DIVER- SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)	88,400 (COMMON CONTAIN-MENT WITH ITEM NO. 32)	LEVEL INDICATOR, H/L ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20, D26

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

<table>
<tr><th>LOC. NO.</th><th>ID NUMBER</th><th>GRID LOC.</th><th>DESIGNATION</th><th>CONTAINER TYPE</th><th>LOCATION</th><th>PRINCIPAL PRODUCT</th><th>TANK CAPACITY (GALLONS)</th><th>CONTAINMENT TYPE</th><th>CONTAINMENT CAPACITY (GALLONS)</th><th>LEVEL DEVICE ALARM</th><th>CORROSION PROTECTION</th><th>DOC. NO. [1]</th></tr>
<tr><td>H35</td><td>1DT404</td><td>C5</td><td>DIESEL GEN FUEL OIL DAY TANK</td><td>STEEL</td><td>AUX BLDG DIESEL ROOM, EL 102'</td><td>NO. 2 FUEL OIL</td><td>550</td><td>HOUSEKEEPING: BLDG CONTAIN-MENT AND CONCRETE FLOOR; DIVER-SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)</td><td>N/A</td><td>LEVEL INDICATOR; H/L ALARM</td><td>INSIDE</td><td>D16, D19, D20</td></tr>
<tr><td>H36</td><td>1ET403</td><td>C5</td><td>DIESEL FUEL OIL STORAGE TANK</td><td>STEEL</td><td>AUX BLDG, EL 54'</td><td>NO. 2 FUEL OIL</td><td>26,500</td><td rowspan="2">COMPLETELY ENCLOSED IN CONCRETE ROOM; DIVER- SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)</td><td rowspan="2">88,400 (COMMON)</td><td>LEVEL INDICATOR, H/L ALARM</td><td>INSIDE</td><td>D7, D9, D16, D17, D18, D19, D20, D26</td></tr>
<tr><td>H37</td><td>1FT403</td><td>C5</td><td>DIESEL FUEL OIL STORAGE TANK</td><td>STEEL</td><td>AUX BLDG, EL 54'</td><td>NO. 2 FUEL OIL</td><td>26,500</td><td>LEVEL INDICATOR, H/L ALARM</td><td>INSIDE</td><td>D7, D9, D16, D17, D18, D19, D20, D26</td></tr>
<tr><td>H38</td><td>1GT403</td><td>C5</td><td>DIESEL FUEL OIL STORAGE TANK</td><td>STEEL</td><td>AUX BLDG, EL 54'</td><td>NO. 2 FUEL OIL</td><td>26,500</td><td rowspan="2">COMPLETELY ENCLOSED IN CONCRETE ROOM; DIVER- SION TO NJPDES LVOW TREAT-MENT SYSTEM (H12)</td><td rowspan="2">88,400 (COMMON)</td><td>LEVEL INDICATOR, H/L ALARM</td><td>INSIDE</td><td>D7, D9, D16, D17, D18, D19, D20, D26</td></tr>
<tr><td>H39</td><td>1HT403</td><td>C5</td><td>DIESEL FUEL OIL STORAGE TANK</td><td>STEEL</td><td>AUX BLDG, EL 54'</td><td>NO. 2 FUEL OIL</td><td>26,500</td><td>LEVEL INDICATOR, H/L ALARM</td><td>INSIDE</td><td>D7, D9, D16, D17, D18, D19, D20, D26</td></tr>
<tr><td>H40 thru H41</td><td colspan="12">RESERVED</td></tr>
</table>

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
H42	00T124	D5	CAUSTIC STORAGE TANK	STEEL	TURBINE BLDG. EL. 54'	50% SODIUM HYDROXIDE	16,000	CONCRETE DIKE AND FLOOR; DIVERSION TO LRWTS	23,500	UNISONIC LEVEL INDICATOR, HIGH AND LOW LEVEL ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H43	00T125	D5	SULFURIC ACID STORAGE TANK	STEEL	TURBINE BLDG. EL. 54'	SULFURIC ACID	16,000	CONCRETE DIKE AND FLOOR; DIVERSION TO LRWTS	23,500	UNISONIC LEVEL INDICATOR, HIGH AND LOW LEVEL ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H44	10T117	D5	ELECTRO-HYDRAULIC CONTROL RESERVOIR	STEEL	TURBINE BLDG. EL. 77'	TRIPHENYL PHOSPHATE	450	CONCRETE DIKE AND FLOOR	960	LEVEL INDICATOR	INSIDE	D16, D17, D18, D19, D20
H45	RESERVED											
H46	00T-567	D6	DISPERSANT STORAGE TANK	COATED FRP	W-SW OF COOLING TOWER	REMOVED FROM SERVICE						
H47	10T573	B6	VEHICLE REFUELING-GASOLINE	STEEL	NORTH OF BARGE SLIP	GASOLINE	6,000	STEEL CONTAINER INSIDE CONCRETE CONTAINMENT	6,000	LEVEL INDICATOR, AUDIBLE/ VISUAL H/L ALARM	EPOXY COATED	D4, D22
H48	10T572	B6	VEHICLE REFUELING-DIESEL	STEEL	NORTH OF BARGE SLIP	DIESEL FUEL	6,000	STEEL CONTAINER INSIDE CONCRETE CONTAINMENT	6,000	LEVEL INDICATOR, AUDIBLE/ VISUAL H/L ALARM	EPOXY COATED	D4, D22
H49 thru H51	RESERVED											
H52	00T558	C5	ASPHALT STORAGE TANK	STEEL	N OF TURBINE BLDG	ASPHALT	10,000	BUILDING AND CONCRETE FLOOR	10,700	LEVEL INDICATOR	INSIDE, PAINTED	D16, D19, D20, D40, D45

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
H53	1AX503	D6	STATION SERVICE TRANSFORMER	STEEL HOUSING	W OF COOLING TOWER	DIELECTRIC FLUID	5,050	HOUSEKEEPING & WTP; CONCRETE CURBING/ CRUSHED STONE BASE	N/A	LEVEL INDICATOR	PAINTED	D2
H54	1BX503	D6	STATION SERVICE TRANSFORMER	STEEL HOUSING	W OF COOLING TOWER	DIELECTRIC FLUID	5,050	HOUSEKEEPING & WTP; CONCRETE CURBING/ CRUSHED STONE BASE	N/A	LEVEL INDICATOR	PAINTED	D2
H55	9YFXF06	E6	SUBSTATION 6 TEMPORARY YARD TRANSFORMER	STEEL HOUSING	E OF COOLING TOWER	DIELECTRIC FLUID	345	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H56	9YFXF09	D4	SUBSTATION 9 TEMPORARY YARD TRANSFORMER	STEEL HOUSING	S-SE OF TURBINE BLDG	DIELECTRIC FLUID	326	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H57	9YFXF01	D4	SUBSTATION 1 TEMPORARY YARD TRANSFORMER	STEEL HOUSING	S OF REACTOR BLDG	DIELECTRIC FLUID	336	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H58	4XMR4HC32G1AX	C5	SUBSTATION NO. 2 TRANSFORMER	STEEL HOUSING	NW OF FUEL HANDLING BLDG	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
H59	9YFXF03	B5	SUBSTATION 3 TEMPORARY YARD TRANSFORMER	STEEL HOUSING	E OF MATERIAL CENTER AND W-NW OF POWER BLOCK	DIELECTRIC FLUID	350	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H60	9YFXF15	D6	SUBSTATION 4 TEMPORARY YARD TRANSFORMER	STEEL HOUSING	SW OF AUXILIARY BOILER BLDG	DIELECTRIC FLUID	350	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H61	9YFXF05	E6	SUBSTATION 5 TEMPORARY YARD TRANSFORMER	STEEL HOUSING	N OF CHANGE HOUSE	DIELECTRIC FLUID	350	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H62	T1	E5	STATION POWER TRANSFORMER	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	25,000	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H63	T2	E5	STATION POWER TRANSFORMER	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	25,000	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H64	T3	E5	STATION POWER TRANSFORMER	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	25,000	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H65	T4	E5	STATION POWER TRANSFORMER	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	25,000	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.*[1]
H66 thru H71		E5	13KV 4000 AMP CIRCUIT BREAKERS (6)	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	336 (each)	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	
H72	RESERVED											
H73	SLP1	E5	NO. 1 STATION LIGHT & POWER TRANSFORMER	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	250	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H74	SLP2	E5	NO. 2 STATION LIGHT & POWER TRANSFORMER	STEEL HOUSING	SWITCH YARD	DIELECTRIC FLUID	250	HOUSEKEEPING & NJPDES LVOW; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H75	0OT313	C5	NaOH, H2SO4 & Na3PO4 CHEM WASTE TANK	STEEL	AUX BLDG RADWASTE AREA, EL. 54'	SODIUM HYDROXIDE	4,500	ENCLOSED IN CONCRETE SECONDARY CONTAINMENT	12,100	ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H76 thru H82	TANK TRUCK UNLOADING AREAS, SEE TABLE II-2B											D93
H83	0AT324	C5	NaOH, H2SO4 & Na3PO4 CONC WASTE TANK	STEEL	AUX BLDG. EL. 54'	SODIUM HYDROXIDE	12,000	ENCLOSED IN A CONCRETE ROOM	14,750	ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H84	0BT324	C5	NaOH, H2SO4 & Na3PO4 CONC WASTE TANK	STEEL	AUX BLDG RADWASTE AREA, EL. 54'	SODIUM HYDROXIDE	12,000	ENCLOSED IN A CONCRETE ROOM	14,750	ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H85	0AT344	C5	NaOH, H2SO4 & Na3PO4 WASTE NEUTRALIZER TANK	STEEL	AUX BLDG. EL. 54'	SODIUM HYDROXIDE	27,500	ENCLOSED IN A CONCRETE ROOM	17,300	ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	ID NUMBER	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRINCIPAL PRODUCT	TANK CAPACITY (GALLONS)	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE ALARM	CORROSION PROTECTION	DOC. NO.[1]
H86	0BT344	C5	$NaOH$, H_2SO_4 & Na_3PO_4 WASTE NEUTRALIZER TANK	STEEL	AUX BLDG RADWASTE AREA, EL. 54'	SODIUM HYDROXIDE	27,500	ENCLOSED IN A CONCRETE ROOM	17,300	ALARM	INSIDE	D7, D9, D16, D17, D18, D19, D20
H87	1AX500	D5	MAIN TRANSFORMER	STEEL HOUSING	SE CORNER OF TURBINE BLDG	DIELECTRIC FLUID	13,480	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW	20,000	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H88	1BX500	D5	MAIN TRANSFORMER	STEEL HOUSING	SE CORNER OF TURBINE BLDG	DIELECTRIC FLUID	13,480	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW	20,000	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H89	1CX500	D5	MAIN TRANSFORMER	STEEL HOUSING	SE CORNER OF TURBINE BLDG	DIELECTRIC FLUID	13,480	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW	20,000	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H90	1AX501	D5	STATION SERVICE TRANSFORMER	STEEL HOUSING	E OF TURBINE BLDG	DIELECTRIC FLUID	5,050	HOUSEKEEPING; CONCRETE CURBING AND CRUSHED STONE FLOOR; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H91	1BX501	D5	STATION SERVICE TRANSFORMER	STEEL HOUSING	E OF TURBINE BLDG	DIELECTRIC FLUID	5,050	HOUSEKEEPING; CONCRETE CURBING AND CRUSHED STONE FLOOR; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H92	1AX502	D5	STATION SERVICE TRANSFORMER	STEEL HOUSING	E OF TURBINE BLDG	DIELECTRIC FLUID	5,050	HOUSEKEEPING; CONCRETE CURBING AND CRUSHED STONE FLOOR; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H93	1BX502	D5	STATION SERVICE TRANSFORMER	STEEL HOUSING	E OF TURBINE BLDG	DIELECTRIC FLUID	5,050	HOUSEKEEPING; CONCRETE CURBING AND CRUSHED STONE FLOOR; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR, LEVEL ALARM	N/A	D2

TABLE II-1B HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES												
LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.* [1]
H94	1CX501	D5	STATION SERVICE TRANSFORMER	STEEL HOUSING	E OF TURBINE BLDG	DIELECTRIC FLUID	5,050	HOUSEKEEPING: CONCRETE CURBING AND CRUSHED STONE FLOOR; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H95	1DX501	D5	STATION SERVICE TRANSFORMER	STEEL HOUSING	E OF TURBINE BLDG	DIELECTRIC FLUID	5,050	HOUSEKEEPING: CONCRETE CURBING AND CRUSHED STONE FLOOR; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR, LEVEL ALARM	N/A	D2
H96	SLP3	E5	STATION LIGHT & POWER TRANSFORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	4,110	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR	N/A	D2
H97	SLP4	E5	STATION LIGHT & POWER TRANSFORMER	STEEL HOUSING	SWITCHYARD	DIELECTRIC FLUID	4,110	HOUSEKEEPING; CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW (H12)	N/A	LEVEL INDICATOR	N/A	D2
H98		G6	CHILLER BUILDING	STEEL	E OF NUCLEAR DEPT BLDG	TURBINE AND COMPRES-SOR OIL, BIOCIDE	55 GAL AND 5 GAL DRUMS	HOUSEKEEPING; CONCRETE PAD AND CURBING	N/A	N/A	INSIDE	D16, D19, D20
H98.1 H98.2	9YFXF10 9YFXF11	G6	SUBSTATION 8A TRANSFORM-ERS (2)	STEEL HOUSING	N OF CHILLER BLDG	DIELECTRIC FLUID		HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H98.3		G6	CHILLER BUILDING COOLING TOWER WASTE TANK		S OF CHILLER BLDG	WATER						
H99		D6	AUX BOILER BLDG (DRUM STORAGE)	STEEL CONTAINER	N OF TURBINE BLDG	CHEMICAL STORAGE	55 GAL DRUMS	HOUSEKEEPING; CONCRETE PAD AND CURBING	N/A	N/A	INSIDE	D16, D19, D20
H99.1 H99.2		D6	HYDRAZINE TANKS (2)	STEEL	NE CORNER OF AUX BOILER BLDG	HYDRAZINE	35 GAL (each)	HOUSEKEEPING; BLDG CONTAIN-MENT; CONCRETE FLOOR AND CURBING; DIVERSION TO NJPDES LVOW (H12)	N/A	N/A	INSIDE	D16, D19, D20
H100	9YFXF08	F6	SUBSTATION 8 TRANSFORMER	STEEL HOUSING	N OF NUCLEAR DEPT BLDG	DIELECTRIC FLUID	250 (Estimated)	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2

TABLE II-1B
HOPE CREEK GENERATING STATION STORAGE AND PROCESS FACILITIES

LOC. NO.	*ID NUMBER*	*GRID LOC.*	*DESIGNATION*	*CONTAINER TYPE*	*LOCATION*	*PRINCIPAL PRODUCT*	*TANK CAPACITY (GALLONS)*	*CONTAINMENT TYPE*	*CONTAINMENT CAPACITY (GALLONS)*	*LEVEL DEVICE ALARM*	*CORROSION PROTECTION*	*DOC. NO.*[1]
H101	9YFSW02-02	D6	TRANSFORMER	STEEL HOUSING	S OF NO. 2 PRODUCTION WELL	DIELECTRIC FLUID	< 1,000	HOUSEKEEPING; CONCRETE PAD	N/A	LEVEL INDICATOR	PAINTED	D2
H102		C6	TRANSFORMER	STEEL HOUSING	NE OF MATERIALS CENTER	DIELECTRIC FLUID	<1,000	HOUSEKEEPING; TIMER MAT	N/A	LEVEL INDICATOR	PAINTED	
H103		E5	13KV BUS SECTION 2 GROUNDING TRANSFORMER	STEEL HOUSING	SWITCHYARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
H104		E5	13KV BUS SECTION 4 GROUNDING TRANSFORMER	STEEL HOUSING	SWITCHYARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
H105		E5	13KV BUS SECTION 7 GROUNDING TRANSFORMER	STEEL HOUSING	SWITCHYARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
H106		E5	13KV BUS SECTION 9 GROUNDING TRANSFORMER	STEEL HOUSING	SWITCHYARD	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
H107	9YFXF12	B5	SUBSTATION NO. 12 TRANSFORMER	STEEL HOUSING	E OF MATERIAL CENTER	DRY	N/A	HOUSEKEEPING; CONCRETE PAD	N/A		PAINTED	
H108	RESERVED											
H109	RESERVEDITEM NUMBERS AND GRID LOCATIONS REFER TO THE DPRP EQUIPMENT INVENTORY MAP											

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
WTP - Waste Treatment Plant
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

1. Document Nos. D27, D43, D66, D74, D78, D82, D88, D91, D95, D96, and D97 apply to all Item Nos. in this table.

TABLE II-1C
COMMON STORAGE AND PROCESS FACILITIES

LOC. NO.	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRODUCT TYPE	PRODUCT QUANTITY	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE	DOC. NO.[1]
SH1	RESERVED									
SH2	D8	EMPTY DRUM SITE	N/A	N OF COOLING TOWER	EMPTY DRUMS, NO HAZARDOUS SUBSTANCE STORAGE					
SH3	D4	180-DAY HAZARDOUS WASTE DRUM STORAGE AREA	STEEL CONTAINERS	W OF NOSF	HAZARDOUS WASTE	55 GAL DRUMS	STEEL CONTAINMENT	> 55	N/A	
SH4	RESERVED									
SH5	E7	COMBO SHOP	STEEL CONTAINERS	E OF COOLING TOWER	GASOLINE, PETROLEUM PRODUCTS, HAZARDOUS WASTE	55 GAL DRUMS	RUBBER CONTAINMENT; HOUSEKEEPING	N/A	N/A	
SH6	F7	LAYDOWN AREA	N/A	E OF COMBO SHOP	PETROLEUM PRODUCTS	55 GAL DRUMS	CONCRETE FLOOR; HOUSEKEEPING	N/A	N/A	
SH7	F7	LAYDOWN AREA	N/A	E OF COMBO SHOP	PETROLEUM PRODUCTS SCRAP METAL, TRANSFORMER HEADS, EMPTY DRUMS	55 GAL DRUMS	CONCRETE FLOOR; HOUSEKEEPING	N/A	N/A	
SH8	RESERVED									
SH9	B5	MATERIALS CENTER	STEEL CONTAINERS	NW OF HOPE CREEK STATION	PETROLEUM PRODUCTS, MISCELLANEOUS CHEMICALS	55 GAL DRUMS	CONCRETE CURBING AND FLOOR; HOUSEKEEPING; SUPPLEMENTED WITH CONTAIN- MENT PALLETS	N/A	N/A	
SH10 thru SH12	RESERVED									
SH13	H3	TEMPORARY STORAGE AREA	STEEL HOUSING	N OF SALEM ACCESS ROAD	DIELECTRIC FLUID	MISC. QUANTITIES	CONCRETE PAD AND CURBING; HOUSEKEEPING	129,972	N/A	D33, D34
SH14 thru SH26	RESERVED									
SH27	C5	HAZARDOUS MATERIAL STORAGE FACILITY	STEEL HAZ-STOR MODULE	E OF MATERIALS CENTER (SH9)	HAZARDOUS MATERIAL	MISC. QUANTITIES	ASPHALT CONCRETE FLOOR AND CURBING; HAZ-STOR MODULE INTEGRAL CONTAINMENT; GRAVEL FILLED DISCHARGE PREVENTION ZONE	N/A	N/A	D4
SH28 thru SH29	RESERVED									

TABLE II-1C
COMMON STORAGE AND PROCESS FACILITIES

LOC. NO.	GRID LOC.	DESIGNATION	CONTAINER TYPE	LOCATION	PRODUCT TYPE	PRODUCT QUANTITY	CONTAINMENT TYPE	CONTAINMENT CAPACITY (GALLONS)	LEVEL DEVICE	DOC. NO.[1]
SH30	D5	HAZARDOUS WASTE DRUM STORAGE AREA	STEEL CONTAINERS	HC - 102' COMMON AREA OF TURBINE BUILDING	HAZARDOUS MATERIALS	MISC. QUANTITIES	STEEL CAGE ON CONCRETE FLOOR; HOUSEKEEPING	N/A	N/A	

ITEM NUMBERS AND GRID LOCATIONS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

1. Document Nos. D27, D43, D66, D74, D78, D82, D88, D91, D95, D96, and D97 apply to all Item Nos. in this table.

TABLE II-1D
SMALL QUANTITY CHEMICAL STORAGE AREAS

AREA	*GRID LOCATION*	*DESIGNATION*
	OFFSITE	ERHARDT WAREHOUSE TRAINING CENTER
	OFFSITE	MANNINGTON TRAINING BUILDING
1	D6	AUX BOILER DAY TANK, LUBE CAGE, SODIUM HYPOCHLORITE TANKS, AUX BOILER BLDG CAGE
2	C5	UNIT 2 CONTAINMENT TANKS, STORAGE ROOMS, LOCKER ROOMS, TEST AREAS, CHEM LABS, COUNTING MACHINE ROOM, CALIBRATION AND REPAIR FLAMM LOCKERS, INSTRUMENT ROOM, DECON ROOM, SHREDDER ROOM, ETC.
3	D3	AUX BLDG PASSROOM, PRIMARY SAMPLE ROOM, PRIMARY LAB, COUNTING LAB, FLAMMABLE LOCKER, CHEM SUPPLY CAGE, VENTILATION ROOM, CONTROL POINT CUSTODIAL LOCKER, BORIC ACID STORAGE, SPARE PARTS, FUEL HANDLING, RAD PRO CAB
5	D5	HOPE CREEK STORE ROOM, D & C FLAMM CABINET ROOM 3
6	C6	HOPE CREEK COMPRESSED GAS STORAGE
7	D3	SALEM COMPRESSED GAS STORAGE CAGE
10	D4 F4	FIRE PUMP HOUSE, PROCESSING CENTER CLOSET
20	D5	TURBINE 1 FLAMMABLE LOCKER, FLAMM LOCKER CORRIDOR, TURBINE 1 TANKS
21	D3	MAINTENANCE MACHINE SHOP, CLEAN FACILITIES STORE ROOM, HAZWASTE STORAGE (MAINT), CLEAN FACILITY MAINT CLOSETS, SALEM STORE ROOM
25	D5	NOTHING STORED AT THIS TIME
26	D3	HAZWASTE STORAGE, UNIT 2 BOILER REPAIR CAGE, UNIT 2 CAGES, UNIT 2 TANKS, UNIT 2 SECONDARY CHEM LAB, UNIT 2 I & C CAGE, UNIT 2 SECONDARY CHEM CAGE, CUSTODIAL STORAGE CAGES, OPS LOCKER ROOM, 1-2 CENTER AREA CLOSET, MAINT HOP CLOSET, UNIT 1 SECONDARY CHEM LAB, UNIT 1 STORAGE CABINET, UNIT 1 CUSTODIAL SUPPLY CAGE, UNIT 2 ELECTRICAL STORAGE CAGE, UNIT 1 LUBE STORAGE AREA, UNIT 1 TANKS, UNIT 1 ELECTRICAL STORAGE CAGE, UNIT 1 DM PLANT AREA, UNIT 1 LUBE STORAGE CABINET, UNIT 1 TANKS, UNIT 2 EQUIP OPERATION ROOM, UNIT 1 TANKS, UNIT 1 BISCO CAGE, UNIT 1 OPERATIONS CAGE, UNIT 2 SW CORNER, SECONDARY CHEM LAB, UNIT 1 OPERATIONS CAGE
27	F4	NO HAZARDOUS SUBSTANCE STORED AT THIS TIME
30	E6	NO HAZARDOUS SUBSTANCE STORED AT THIS TIME
32	F7	SHED, COMBO SHOP, TRANSFORMERS
33	E6	WELDING TEST SHOP, COMPRESSED GAS STORAGE
44	C4	NOTHING STORED AT THIS TIME
48	D3	CHEMICAL TREATMENT BLDG
50	D4	BREAKER REPAIR SHOP, HPES TRAILER, CUSTODIAL SHOP GENERAL STORAGE, CUSTODIAL SHOP TOOL STORAGE AREA, CUSTODIAL SHOP OFFICES
59	C4	INSULATION SHOP
60	F6	WAREHOUSE 13, CHAMP CUST SUPPLY

TABLE II-1D
SMALL QUANTITY CHEMICAL STORAGE AREAS

AREA	*GRID LOCATION*	*DESIGNATION*
65	F6	LIBRARY CLOSETS, ELEVATOR CLOSET, ENGINEERING CLOSET, ROOM 222 OF NUC DEPT ADMIN BLDG, HUMAN RESOURCES, WEST CLOSET 2ND CUST CENTRAL STORAGE ROOM 1ST FLOOR
72	D2	CIRCULATION WATER INTAKE, HAZWASTE STORAGE (OPERATIONS), FISH POOL ROOM
73	B6	FIRE DEPARTMENT BOAT HOUSE
76	E3	UNIT 1 CONDENSATE POLISHING
77	E4	UNIT 2 CONDENSATE POLISHING
81	E3	UNIT 1 CHEMISTRY ADMIN, ADMIN CAFETERIA CUSTODIAL CLOSET, ADMIN OFFICES SUPPLY ROOM, ADMIN REST ROOM CLOSET
82	E4	SECURITY CENTER, CUST CLOSET MENS ROOM, CUST CLOSET BASEMENT
83	D4	AUX BOILER ROOM
205	D4	WILLIAMS PAINT STORAGE, WILLIAMS PAINT MIXING
210	D4	HAZARDOUS WASTE STORAGE SITE
211	D3	CHLORINATION SAMPLING BLDG
213	B6	SEWAGE TREATMENT PLANT
216	D4	HYDROGEN CYLINDERS, HOPE CREEK MAINTENANCE SHOP
250	D3	SERVICE WATER INTAKE STRUCTURE
251	E4	NOTHING STORED AT THIS TIME
257	E6	NOTHING STORED AT THIS TIME
258	D5	HOPE CREEK MAINTENANCE SHOP, FLAMM CAB, TURB BLDG FLAMM CAB
259	D5	TURB BLDG RAD PRO, I & C STORAGE, LUBE CAGE, FYRQUEL STORAGE
260	D5	ADMIN BLDG MENS ROOM 120, ADMIN BLDG MOP CLOSET, ADMIN BLDG WOMENS ROOM, CUST STORAGE, CUST CLOSET 120, CUST CLOSET 102, MENS ROOM 102, TURB BLDG - MAINT STORAGE
262	D6	CHEMISTRY TRAILER AT CIRC WATER
264	F6	ISI DARKROOM TRAILER
265	G6	CHILLER BLDG
300	B5	CUST CLOSET, STATIONARY ROOM, ELEC ROOM, MATERIAL CENTER WAREHOUSE HAZMAT TRAILERS 1, 2, 4, 5, 7, 8, 10, 6, 3
350	F3	HAGAN RESTORE TRAILER CUST CLOSET

TABLE II-1D
SMALL QUANTITY CHEMICAL STORAGE AREAS

AREA	*GRID LOCATION*	*DESIGNATION*
500	D4	M&TE ROOM STORAGE, TEMP LAB, PRESSURE CAR METERS LAB, GEN ELECTRONICS LAB, TORQUE, DIMENSIONAL, MAPLEWOOD VIBRATIONS LAB, OIL LAB PHOTO DEVELOPING LAB ROOM, CUST ROOM 24, 104 & 225

GRID LOCATIONS REFER TO THE DPRP EQUIPMENT INVENTORY MAP
NOTE: THIS LIST IS NOT ALL INCLUSIVE. THERE MAY BE OTHER SMALL QUANTITY CHEMICAL STORAGE AREAS THAT ARE NOT RECORDED IN THIS TABLE. STORAGE CONTAINERS OF CHEMICALS IN SMALL QUANTITY STORAGE AREAS INCLUDE, BUT ARE NOT LIMITED TO, 235-GALLON TOTES, 55-GALLON DRUMS, 5-GALLON PAILS, AND VARIOUS SMALL SIZES OF BOTTLES AND AEROSOL CANS.

TABLE II-2A
SALEM GENERATING STATION TRUCK LOADING / UNLOADING AREAS

LOC. NO.	*GRID LOC.*	*DESIGNATION*	*LOCATION*	*PRODUCT TYPE*	*PRODUCT DELIVERY QUANTITY*	*CONTAINMENT TYPE*	*CONTAINMENT QUANTITY*	*DOC. NO.*[1]
S56	D4	NOSF TEMPORARY EQUIPMENT CONTAINMENT	WEST OF NOSF	MISCELLANEOUS EQUIPMENT	N/A	CONCRETE PAD AND CURBING	3,700 GAL	
S81	E3	ACID / CAUSTIC, CPS	W OF UNIT 2 CPS BUILDING	SODIUM HYDROXIDE AND SULFURIC ACID	2,500 TO 3,000 GAL / DELIVERY	CONCRETE PAD AND CURBING[2]	3,900 GAL; GREATER THAN LARGEST TANK COMPARTMENT	D92
S82	E3	AMMONIA / TURBINE LUBRICATING OIL	E OF UNIT 1 TURBINE BUILDING	AMMONIUM HYDROXIDE	3,000 GAL / DELIVERY	CONCRETE PAD AND CURBING[2]	3,900 GAL; GREATER THAN LARGEST TANK COMPARTMENT	D40, D80, D81, D92
				LUBE OIL	6,000 GAL / DELIVERY			
S83	D3	DEMINERALIZER ACID / CAUSTIC	W OF DEMINERALIZER PLANT, UNIT 1 TURBINE BUILDING	SODIUM HYDROXIDE AND SULFURIC ACID	3,500 TO 4,000 GAL / DELIVERY	CONCRETE PAD SURROUNDED BY GRATED TRENCH; DIVERSION TO NRLWDS	DIVERSION TO NRLWDS - NO RETENTION PROVIDED	D86, D92
S84	E3	MAIN FUEL OIL	NE OF FUEL OIL TANK	NO. 2 FUEL OIL	7,500 GAL / DELIVERY	CONCRETE PAD AND CURBING[2]	4,700 GAL; GREATER THAN LARGEST TANK COMPARTMENT	D40, D92
S84.1	E3	FUEL OIL FILTERS	NE OF FUEL OIL TANK	NO. 2 FUEL OIL	N/A	CONCRETE PAD AND CURBING[2]	EST 2,000 GAL	D40
S85	D3	HYPOCHLORITE	SW OF HYPOCHLORITE TANKS	SODIUM HYPOCHLORITE	4,000 GAL / DELIVERY	CONCRETE PAD AND CURBING	4,400 GAL; GREATER THAN LARGEST TANK COMPARTMENT	D92
S86	D3	NRLWDS CAUSTIC	W OF NRLWDS CONTROL BUILDING	SODIUM HYDROXIDE	3,000 GAL / DELIVERY	CONCRETE PAD AND CURBING; DIVERSION TO NRLWDS	GREATER THAN LARGEST TANK COMPARTMENT	D92
S87	E3	OIL/WATER SEPARATOR	EAST OF AUX GUARDHOUSE	USED OIL/SLUDGE	6,000 GAL / DELIVERY	CONCRETE PAD AND CURBING	6,000 GAL	

TABLE II-2A
SALEM GENERATING STATION TRUCK LOADING / UNLOADING AREAS

LOC. NO.	*GRID LOC.*	*DESIGNATION*	*LOCATION*	*PRODUCT TYPE*	*PRODUCT DELIVERY QUANTITY*	*CONTAINMENT TYPE*	*CONTAINMENT QUANTITY*	*DOC. NO.*[1]
S136	D3	DICHROMATE SKID TRUCK CONTAINMENT	SOUTH OF UNIT 1 CONTAINMENT					ITEM NUMBERS AND GRID LOCATIONS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

1. Document Nos. D43, D65, D66, D74, D77, D78, D82, D88, D91, D93, D95, D96, and D97 apply to all Item Nos. in this table.

2. Diversion to NJPDES permitted outfall.

TABLE II-2B
HOPE CREEK GENERATING STATION TRUCK LOADING / UNLOADING AREAS

LOC. NO.	*GRID LOC.*	*DESIGNATION*	*LOCATION*	*PRODUCT TYPE*	*PRODUCT DELIVERY QUANTITY*	*CONTAINMENT TYPE*	*CONTAINMENT QUANTITY*	*DOC. NO.* [1]
H76	B6	MAIN FUEL OIL	NORTH OF BARGE SLIP	NO. 2 FUEL OIL, DIESEL, GASOLINE	7,500 GAL / DELIVERY	CONCRETE PAD AND CURBING; DIVERSION TO LIFT STATION 1B OF THE NJPDES LVOW TREATMENT SYSTEM	4,700 GAL; GREATER THAN LARGEST TANK COMPARTMENT	D40, D92
H77	D6	COOLING TOWER CHEMICALS	SOUTHWEST OF COOLING TOWER	SODIUM HYDROXIDE	5,000 GAL / DELIVERY	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM	GREATER THAN LARGEST TANK COMPARTMENT	D92
				DISPERSANT BETZ POWERLINE PEG-01	SEE NOTE			
				SODIUM HYPOCHLORITE	5,000 GAL / DELIVERY			
				AMMONIUM BISULFITE	3,000 GAL / DELIVERY			
H78	D5	DEMINERALIZER REGENERANT / TURBINE LUBRICATING OIL	EAST OF TURBINE BUILDING	SODIUM HYDROXIDE, SULFURIC ACID	4,000 GAL / DELIVERY	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM	GREATER THAN LARGEST TANK COMPARTMENT	D40, D92
				LUBRICATING OIL	6,000 GAL / DELIVERY			
H79	C6	AUXILIARY BOILER FUEL OIL	NORTHWEST OF AUXILIARY BOILER BUILDING	NO. 2 FUEL OIL	7,500 GAL / DELIVERY	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM	6,000 GAL; GREATER THAN LARGEST TANK COMPARTMENT	D40, D92
H80	B5	SERVICE WATER HYPOCHLORITE	EAST OF HYPOCHLORITE TANKS AT INTAKE STRUCTURE	SODIUM HYPOCHLORITE	5,000 GAL / DELIVERY	CONCRETE PAD AND CURBING	GREATER THAN LARGEST TANK COMPARTMENT	D92
H81	B6	LOW VOLUME OILY WASTE (LVOW)	NORTH OF SEWAGE PLANT	USED AND/OR SURPLUS OIL	TRUCK VOLUME	TEMPORARY	GREATER THAN LARGEST TANK COMPARTMENT	
H82	C5	DIESEL GENERATOR FUEL OIL	WEST OF DIESEL BUILDING	NO. 2 FUEL OIL	7,500 GAL / DELIVERY	CONCRETE PAD AND CURBING; DIVERSION TO NJPDES LVOW TREATMENT SYSTEM	GREATER THAN LARGEST TANK CAPACITY	D40, D92
H98	G6	CHILLER BUILDING UNLOADING AREA	EAST OF NUCLEAR DEPARTMENT BUILDING	TURBINE AND COMPRESSOR OIL, BIOCIDE		HOUSEKEEPING; CONCRETE PAD AND CURBING		

ITEM NUMBERS AND GRID LOCATIONS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

NOTE: This chemical currently not in use, may be used in the future.

TABLE II-2B HOPE CREEK GENERATING STATION TRUCK LOADING / UNLOADING AREAS								
LOC. NO.	*GRID LOC.*	*DESIGNATION*	*LOCATION*	*PRODUCT TYPE*	*PRODUCT DELIVERY QUANTITY*	*CONTAINMENT TYPE*	*CONTAINMENT QUANTITY*	*DOC. NO.*[1]
CPS - Condensate Polishing System FRP - Fiberglass Reinforced Plastic LRWTS - Liquid Radioactive Waste Treatment System			*LVOW - Low Volume Oily Waste NRLWDS - Non Radioactive Liquid Waste Disposal System WTP - Waste Treatment Plant*		*NOTE:*	*DPCC/DCR Regulations apply to all aboveground storage tanks SPCC/FRP Regulations apply to all storage tanks containing petroleum products only Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.*		

1. Document Nos. D43, D65, D66, D74, D77, D78, D82, D88, D91, D93, D95, D96, and D97 apply to all Item Nos. in this table.

NOTE: This chemical currently not in use, may be used in the future.

TABLE II-3A
SALEM GENERATING STATION TANK SPILL RISK MATRIX

LOC. NO.	ID NUMBER	DESIGNATION	CONTAINER TYPE	PRODUCT TYPE	TANK CAPACITY (gal)	DATE IN SERVICE*	PTS*	PROXIMITY TO RIVER	PTS*	LEAKS IN PAST 5 YRS	PTS*	YEARS SINCE LAST TEST	PTS*	TOTAL PTS*	LAST INTEGRITY TEST COMPLETION DATE
S4	1CLE6	COOLING WATER SODIUM HYPOCHLORITE STORAGE TANK NO. 1	LINED STEEL	SODIUM HYPOCHLORITE	88,000	1973	3	<500	5	1	5	>5	15	28	07-30-92
S5	1CLE7	COOLING WATER SODIUM HYPOCHLORITE STORAGE TANK NO. 2	LINED STEEL	SODIUM HYPOCHLORITE	88,000	1973	3	<500	5	1	5	>5	15	28	07-30-92
S7	2CPE38	CAUSTIC STORAGE TANK NO.1	LINED STEEL	SODIUM HYDROXIDE	2,250	1978	3	>500	1	0	1	>5	15	20	03-26-93
S8	2CPE39	CAUSTIC STORAGE TANK NO.2	LINED STEEL	SODIUM HYDROXIDE	2,250	1978	3	>500	1	0	1	>5	15	20	03-26-93
S9	1DFE13	MAIN FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	840,000	1970	3	<500	5	0	1	>5	15	24	07-29-92
S18	1CFE24	AMMONIA STORAGE TANK	STEEL	AMMONIUM HYDROXIDE	3,500	1970	3	>500	1	0	1	>5	15	20	12-24-92
S29	1TLE30	TURBINE OIL RECEIVING & MAKE-UP TANK	STEEL	PETROLEUM LUBE OIL	6,000	1969	3	>500	1	0	1	>5	15	20	12-23-92
S30	1DME30	CAUSTIC STORAGE TANK	EPOXY ENAMEL COATED STEEL	SODIUM HYDROXIDE	4,000	1970	3	>500	1	0	1	>5	15	20	01-12-93
S31	1DME31	CAUSTIC STORAGE TANK	EPOXY ENAMEL COATED STEEL	SODIUM HYDROXIDE	4,000	1970	3	>500	1	0	1	>5	15	20	01-12-93
S32	1DME28	SULFURIC ACID STORAGE TANK	BAKED PHENOLIC RESIN COATED STEEL	SULFURIC ACID	4,000	1970	3	>500	1	0	1	>5	15	20	01-06-93

* Denotes DPCC/DCR Plan items

TABLE II-3A
SALEM GENERATING STATION TANK SPILL RISK MATRIX

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*DATE IN SERVICE**	*PTS**	*PROXIMITY TO RIVER*	*PTS**	*LEAKS IN PAST 5 YRS*	*PTS**	*YEARS SINCE LAST TEST*	*PTS**	*TOTAL PTS**	*LAST INTEGRITY TEST COMPLETION DATE*
S33	1DME29	SULFURIC ACID STORAGE TANK	BAKED PHENOLIC RESIN COATED STEEL	SULFURIC ACID	4,000	1970	3	>500	1	0	1	>5	15	20	01-06-93
S34	1TLE6	TURBINE LUBE OIL STORAGE TANK	STEEL	PETROLEUM LUBE OIL	14,000	1969	3	>500	1	0	1	>5	15	20	01-22-93
S35	1TLE7	TURBINE LUBE OIL STORAGE TANK	STEEL	PETROLEUM LUBE OIL	14,000	1969	3	>500	1	0	1	>5	15	20	01-22-93
S36	2TLE6	TURBINE LUBE OIL STORAGE TANK	STEEL	PETROLEUM LUBE OIL	14,000	1969	3	>500	1	0	1	>5	15	20	01-22-93
S37	2TLE7	TURBINE LUBE OIL STORAGE TANK	STEEL	PETROLEUM LUBE OIL	14,000	1969	3	>500	1	0	1	>5	15	20	01-22-93
S39	2CPE36	SULFURIC ACID STORAGE TANK	LINED STEEL	SULFURIC ACID	2,250	1978	3	>500	1	0	1	>5	15	20	01-22-93
S40	2CPE37	SULFURIC ACID STORAGE TANK	LINED STEEL	SULFURIC ACID	2,250	1978	3	>500	1	0	1	>5	15	20	01-22-93
S50	1DFE1	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	30,000	1969	3	>500	1	0	1	>5	15	20	12-08-92
S51	1DFE2	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	30,000	1969	3	>500	1	0	1	>5	15	20	12-08-92
S52	2DFE1	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	30,000	1969	3	>500	1	0	1	>5	15	20	12-08-92
S53	2DFE2	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	30,000	1969	3	>500	1	0	1	>5	15	20	12-08-92
S78	1LWE15	NRLWDS CAUSTIC STORAGE TANK	FRP - DURAKANE 411	SODIUM HYDROXIDE (50%)	5,000	10-25	3	<500	5	0	1	>5	15	24	07-31-92

* Denotes DPCC/DCR Plan items

TABLE II-3A
SALEM GENERATING STATION TANK SPILL RISK MATRIX

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*DATE IN SERVICE**	*PTS**	*PROXIMITY TO RIVER*	*PTS**	*LEAKS IN PAST 5 YRS*	*PTS**	*YEARS SINCE LAST TEST*	*PTS**	*TOTAL PTS**	*LAST INTEGRITY TEST COMPLETION DATE*
S79	1CSE5	1 CONT SPRAY ADDITIVE TANK (SODIUM HYDROXIDE)	STEEL	SODIUM HYDROXIDE	4,000	1971	3	>500	1	0	1	>5	15	20	12-24-92
S80	2CSE5	2 CONT SPRAY ADDITIVE TANK (SODIUM HYDROXIDE)	STEEL	SODIUM HYDROXIDE	4,000	1971	3	>500	1	0	1	>5	15	20	12-24-92
S138	UNASSIGNED	PROPYLENE GLYCOL STORAGE TANK	STEEL	PROPYLENE GLYCOL	5,200	<10	1	<500	5	0	1	>5	15	22	11-04-97
S160	2000 INSTAL-LATION	"USED OIL" STORAGE TANK	STEEL	USED OIL	3,500	2000	1	<500	5	0	1	>1 but <5	5	12	03-01-00

ITEM NUMBERS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System

LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: *DPCC/DCR Regulations apply to all aboveground storage tanks*
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

* Denotes DPCC/DCR Plan items

TABLE II-3B
HOPE CREEK GENERATING STATION TANK SPILL RISK MATRIX

LOC. NO.	ID NUMBER	DESIGNATION	CONTAINER TYPE	PRODUCT TYPE	TANK CAPACITY (gal)	DATE IN SERVICE*	PTS*	PROXIMITY TO RIVER	PTS*	LEAKS IN PAST 5 YRS	PTS*	YEARS SINCE LAST TEST	PTS*	TOTAL PTS*	LAST INTEGRITY TEST COMPLETION DATE
H1	0AT500	CIRC WATER CAUSTIC STORAGE TANK	LINED CARBON STEEL	SODIUM HYDROXIDE	21,154	1982	1	>500	1	0	1	>5	15	18	01-14-93
H2	0BT501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	30,000	1991	1	>500	1	0	1	<1	1	4	12-18-92
H3	0CT501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	30,000	1991	1	>500	1	0	1	<1	1	4	01-06-93
H4	0ET501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	15,254	1991	1	<500	5	0	1	<1	1	8	12-22-92
H5	0FT501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	15,254	1991	1	<500	5	0	1	<1	1	8	01-07-93
H6	0OT140	CAUSTIC STORAGE TANK	STEEL	SODIUM HYDROXIDE	16,000	1978	3	>500	1	0	1	>5	15	20	01-08-93
H7	0OT141	SULFURIC ACID STORAGE TANK	STEEL	SULFURIC ACID	16,000	1978	3	>500	1	0	1	>5	15	20	01-08-93
H8	0OT516	MAIN FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	1,000,000	1982	3	<500	5	0	1	>5	15	24	07-29-92
H10	0OT527	AUX BOILER FUEL OIL DAY TANK	STEEL	NO. 2 FUEL OIL	18,000	1982	3	>500	1	0	1	>5	15	20	12-17-92
H14	0OT750	AMMONIUM BISULFITE STORAGE TANK	COATED FRP	AMMONIUM BISULFITE	5,000	1986	3	>500	1	0	1	>5	15	20	01-25-93
H16	1OT119	TURBINE LUBE OIL STORAGE TANK	STEEL	PETROLEUM OIL	22,000	1979	3	>500	1	0	1	>5	15	20	01-08-93

* Denotes DPCC/DCR Plan items

NOTE: Tank is presently out of service and will be tested prior to returning to service.

TABLE II-3B
HOPE CREEK GENERATING STATION TANK SPILL RISK MATRIX

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*DATE IN SERVICE**	*PTS**	*PROXIMITY TO RIVER*	*PTS**	*LEAKS IN PAST 5 YRS*	*PTS**	*YEARS SINCE LAST TEST*	*PTS**	*TOTAL PTS**	*LAST INTEGRITY TEST COMPLETION DATE*
H18	1OT120	TURBINE LUBE OIL RECEIVING TANK	STEEL	PETROLEUM OIL	22,000	1979	3	>500	1	0	1	>5	15	20	01-08-93
H24	0OT546	"USED OIL" HOLDING TANK	STEEL	PROCESS WASTEWATER	15,000	10-25	3	>500	1	0	1	>5	15	20	10-31-97
H26	1AT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H29	1BT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H32	1CT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H34	1DT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H36	1ET403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H37	1FT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H38	1GT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H39	1HT403	DIESEL FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	26,500	1978	3	>500	1	0	1	>5	15	20	11-24-92
H42	0OT124	CAUSTIC STORAGE TANK	STEEL	SODIUM HYDROXIDE	16,000	10-25	3	>500	1	0	1	>5	15	20	N/A
H43	0OT125	SULFURIC ACID STORAGE TANK	STEEL	SULFURIC ACID	16,000	10-25	3	>500	1	0	1	>5	15	20	N/A
H46	0OT-567	DISPERSANT STORAGE TANK	COATED FRP	SODIUM HYDROXIDE	10,000	10-25	3	>500	1	0	1	>5	15	20	See Note

* Denotes DPCC/DCR Plan items

NOTE: Tank is presently out of service and will be tested prior to returning to service.

TABLE II-3B
HOPE CREEK GENERATING STATION TANK SPILL RISK MATRIX

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*DATE IN SERVICE**	*PTS**	*PROXIMITY TO RIVER*	*PTS**	*LEAKS IN PAST 5 YRS*	*PTS**	*YEARS SINCE LAST TEST*	*PTS**	*TOTAL PTS**	*LAST INTEGRITY TEST COMPLETION DATE*
H47	10T573	VEHICLE REFUELING-GASOLINE	STEEL	GASOLINE	6,000	<10	1	<500	5	0	1	<5	5	12	08-26-93
H48	10T572	VEHICLE REFUELING-DIESEL	STEEL	DIESEL FUEL	6,000	<10	1	<500	5	0	1	<5	5	12	08-26-93ITEM NUMBERS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

* Denotes DPCC/DCR Plan items

NOTE: Tank is presently out of service and will be tested prior to returning to service.

TABLE II-3C
COMPLETED PSEG NUCLEAR LLC TANK TESTING MATRIX[1]

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*INITIAL INTEGRITY TEST DATE*	*DATE LAST INTEGRITY TEST PERFORMED*						
							AC	*EX*	*IN*	*RT*	*SP*	*ST*	*UT*
S4	1CLE6 s1cw-1cle6	COOLING WATER SODIUM HYPOCHLORITE STORAGE TANK NO. 1	LINED STEEL	SODIUM HYPOCHLORITE	88,000	07-30-92		07-30-92 12-05-97 01-11-02 OOS	09-11-97 12-14-01 OOS			12-05-97 01-25-02 OOS	07-30-92 12-04-97 01-14-02 OOS
S5	1CLE7 s1cw-1cle7	COOLING WATER SODIUM HYPOCHLORITE STORAGE TANK NO. 2	LINED STEEL	SODIUM HYPOCHLORITE	88,000	07-30-92		07-30-92 10-02-97 09-26-02 11-04-04	08-07-96 06-11-02 11-04-04			10-02-97 10-04-02 11-04-04	07-30-92 12-04-97 09-26-02 11-04-04
S9	1DFE13 s1df-1dfe13	MAIN FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	840,000	07-29-92	07-29-92	07-29-92 08-01-96 06-01-01 05-09-06	OPTION 3 (08-01-96) 06-01-01	08-01-96		06-19-01 05-10-06	08-01-96 06-01-01 05-10-06
S78	1LWE15 s1lw-1lwe15	NRLWDS CAUSTIC STORAGE TANK	FRP - DURAKANE 411	SODIUM HYDROXIDE (50%)	5,000	07-31-92	03-10-98 09-26-02 08-02-07	07-31-92 12-17-97 09-26-02 08-01-07	03-03-00 08-05-02 08-02-07			07-31-92 12-18-97 09-27-02 08-02-07	
S160	2000 INSTALLATION sczz-1zze30	"USED OIL" STORAGE TANK	STEEL	USED OIL	3,500	03-01-00 (NEW TANK)		03-03-00 01-11-06	03-03-00 01-11-06			03-08-00 02-16-06	03-01-00 01-11-06
H1	0AT500 h0de-0a-t-500	CIRC WATER CAUSTIC STORAGE TANK	LINED CARBON STEEL	SODIUM HYDROXIDE	21,154	01-14-93	03-06-98 08-05-02 07-09-07	01-14-93 12-18-97 07-23-02 07-06-07	OPTION 2 (03-06-98) 07-23-02 07-05-07			01-14-93 03-12-98 08-02-02 07-09-07	
H2	0BT501 h0dd-0ddtah-3550b	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	30,000	12-18-92 (NEW TANK)		12-18-92 12-09-97 12-13-02 08-17-06	01-29-98 12-13-02 08-17-06			12-18-92 12-09-97 12-19-02 09-23-06	12-15-97 10-10-02 08-17-06
H3	0CT501 h0dd-0c-t-501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	30,000	01-06-93 (NEW TANK)		01-06-93 12-15-97 11-19-02 11-06-06	01-31-97 02-02-98 11-19-02 08-30-06			12-15-97 11-22-02 11-16-06	01-06-93 12-15-97 10-10-02 11-16-06
H4	0ET501 h0eq-0e-t-501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	15,254	12-22-92		12-22-92 12-11-97 08-22-01 08-11-06	05-28-97 08-14-01 08-08-06			12-21-92 12-11-97 08-21-01 10-11-06	12-13-97 08-21-01 08-11-06

TABLE II-3C
COMPLETED PSEG NUCLEAR LLC TANK TESTING MATRIX[1]

LOC. NO.	ID NUMBER	DESIGNATION	CONTAINER TYPE	PRODUCT TYPE	TANK CAPACITY (gal)	INITIAL INTEGRITY TEST DATE	DATE LAST INTEGRITY TEST PERFORMED						
							AC	EX	IN	RT	SP	ST	UT
H5	0FT501 h0eq -0f-t-501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	15,254	01-07-93		01-07-93 12-05-97 05-22-02 08-05-06	05-28-97 05-22-02 07-26-06			12-05-97 05-24-02 08-05-06	01-07-93 12-13-97 05-23-02 07-26-06
H8	0OT516 h0ia -0o-t-516	MAIN FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	1,000,000	07-29-92	07-29-92	07-29-92 10-22-97 09-10-02 11-15-06	OPTION 3 (10-31-97) 09-06-02 08-15-06	10-31-97 09-06-02		10-23-97 09-06-02 11-15-06	07-30-92 10-31-97 09-06-02 08-07-06
H10	0OT527 h0ia -0o-t-527	AUX BOILER FUEL OIL DAY TANK	STEEL	NO. 2 FUEL OIL	18,000	12-17-92		12-17-92 12-16-97 08-15-02 08-16-06	OPTION 1 (10-30-97) 08-16-02 08-15-06			12-17-92 08-04-98 09-17-02 08-15-06	10-30-97 08-15-02 08-16-06
H14	0OT750 h0df -0o-t-750	AMMONIUM BISULFITE STORAGE TANK	COATED FRP	AMMONIUM BISULFITE	5,000	01-25-93	03-12-98 09-12-02 06-27-07	12-17-97 09-13-02 06-27-07	01-25-93 03-12-00 09-13-02 06-26-07			01-25-93 12-24-97 09-13-02 06-28-07	
H24	0OT546 h0le -0o-t-547	"USED OIL" HOLDING TANK	STEEL	PROCESS WASTEWATER	15,000	10-31-97		12-17-97 12-17-02 08-16-07	OPTION 1 (12-17-97) 12-17-02 08-15-07			06-26-00 12-20-02 08-16-07	12-17-97 10-09-02 08-16-07
H47	10T573 h1zz-1o-t-573	VEHICLE REFUELING-GASOLINE	STEEL	GASOLINE	6,000	08-26-93 (NEW TANK)		09-02-98	OPTION 1 (08-26-98)			09-02-98	08-26-98
H48	10T572 h1zz-1o-t-572	VEHICLE REFUELING-DIESEL	STEEL	DIESEL FUEL	6,000	08-26-93 (NEW TANK)		09-02-98 09-08	OPTION 1 (08-26-98) 07-13			09-02-98 08-13	08-26-98ITEM NUMBERS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
WTP - Waste Treatment Plant
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

TABLE II-3C
COMPLETED PSEG NUCLEAR LLC TANK TESTING MATRIX[1]

LOC. NO.	ID NUMBER	DESIGNATION	CONTAINER TYPE	PRODUCT TYPE	TANK CAPACITY (gal)	INITIAL INTEGRITY TEST DATE	DATE LAST INTEGRITY TEST PERFORMED						
							AC	EX	IN	RT	SP	ST	UT

Types of Integrity Testing: *AC - Acoustic Emission* *EX - External Visual* *IN - Internal Visual* *RT - Robotic Testing* *SP - Spark Testing* *ST - Static HeadUT - Ultrasonic Testing*

Note: The Bureau has identified three alternatives to emptying and cleaning a steel tank every five years when performing internal inspections. When using one of these alternatives, it must be understood that the combination of both integrity testing and internal inspection must be performed. The "Option" identified under IN above indicates one of the following alternatives:

1. *If the tank is raised off the ground, such as on saddles, ultrasonic thickness measurements may be made around the entire tank at equidistant locations of no more than 1 foot spaced around the circumference of the tank and at least every 5 feet along the length of the tank; the tank ends must also be sampled at appropriate intervals. For vertical tanks, the base is to be inspected at 1 foot intervals from the centerpoint radiating along lines 90 degrees apart. If this option is used, the tank must be emptied and cleaned for direct internal examination if the test results indicate significant wall thinning or corrosion but in no case shall the interval between direct examinations exceed once every ten years. Significant corrosion for a particular tank is dependent on the service, construction, and environment of the tank and needs to be determined using accepted industry practice and best engineering judgement. If the tank has not undergone a direct internal inspection for more than 10 years, this option may only be used with prior written approval from the Department. This option is not acceptable for double walled tanks.*

2. *If the tank bottom is not accessible from the outside, ultrasonic thickness measurements may be made on the tank shell as described in Option 1 and no more than six inches from the base of the tank (chime area) in conjunction with acoustic emission testing being used to determine the condition of the tank bottom. If this option is used, the tank must be emptied and cleaned for direct internal examination if the test results indicate significant wall thinning or corrosion but in no case shall the interval between direct examinations exceed once every ten years. If the tank has not undergone a direct internal inspection for more than 10 years, this option may only be used with prior written approval from the Department.*

3. *The tank interior, bottom and shell, may be visually or ultrasonically examined using a robotic instrument. Again, the Department highly recommends performing ultrasonic tests on the tank bottom when doing this internal inspection. Depending on the substance stored, inspection without emptying the tank may or may not be an option. Acoustic emission testing may be used in conjunction with Option 3 if indeterminate robotic visual inspections are noted.*

Tanks that show signs of deterioration by any of the above tests must be taken out of service, emptied, cleaned, and repaired or retired. If the tank's interior bottom and shell cannot be adequately visualized or tested using any of the above methods, the tank must be emptied, cleaned and visually internally inspected.

As allowed by NJAC 7:1E-1.11(c), if a facility can demonstrate to the satisfaction of the Department that a particular method is appropriate to a tank's material of construction, size, and orientation and will adequately reveal the condition of the tank interior, this means of internal inspection will be considered acceptable upon evaluation and approval by the Department.

TABLE II-3D
UPCOMING PSEG NUCLEAR LLC TANK TESTING MATRIX AND SCHEDULE UNDER THE FIVE YEAR TESTING INTERVAL [1]

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*INITIAL INTEGRITY TEST DATE*	*NEXT INTEGRITY TEST DATE*						
							AC	*EX*	*IN*	*RT*	*SP*	*ST*	*UT*
S4	1CLE6 s1cw-1cle6	COOLING WATER SODIUM HYPOCHLORITE STORAGE TANK NO. 1	LINED STEEL	SODIUM HYPOCHLORITE	88,000	07-30-92		Before Restart MI S1290901	Before Restart			Before Restart	Before Restart
S5	1CLE7 s1cw-1cle7	COOLING WATER SODIUM HYPOCHLORITE STORAGE TANK NO. 2	LINED STEEL	SODIUM HYPOCHLORITE	88,000	07-30-92		11/09 MI S1290902	11/09			11/09	11/09
S9	1DFE13 s1df-1dfe13	MAIN FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	840,000	07-29-92	05/11 MI S1290903	05/11	OPTION 3 05/11	05/11		05/11	05/11
S78	1LWE15 s1lw-1lwe15	NRLWDS CAUSTIC STORAGE TANK	FRP - DURAKANE 411	SODIUM HYDROXIDE (50%)	5,000	07-31-92	08/12 MI S1290904	08/12	08/12			08/12	
S160	2000 INSTALLATION sczz-1zze30	"USED OIL" STORAGE TANK	STEEL	USED OIL	3,500	03-01-00 (NEW TANK)		01/11 MI 28646	01/11			01/11	01/11
H1	0AT500 h0de-0a-t-500	CIRC WATER CAUSTIC STORAGE TANK	LINED CARBON STEEL	SODIUM HYDROXIDE	21,154	01-14-93	07/12	07/12 MI HC710003	OPTION 2* 07/12			07/12	
H2	0BT501 h0dd-0ddtah-3550b	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	30,000	12-18-92 (NEW TANK)		08/11 MI HC710007	08/11			08/11	08/11
H3	0CT501 h0dd-0c-t-501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	30,000	01-06-93 (NEW TANK)	30005120	08/11 MI HC710010	08/11			08/11	08/11
H4	0ET501 h0eq-0e-t-501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	15,254	12-22-92	30005142	08/11 MI HC710012	08/11			08/11	08/11
H5	0FT501 h0eq-0f-t-501	SODIUM HYPOCHLORITE STORAGE TANK	DURAKANE 411 LINED CARBON STEEL	SODIUM HYPOCHLORITE	15,254	01-07-93	30005149	07/11 MI HC710013	07/11			07/11	07/11
H8	0OT516 h0ja-0o-t-516	MAIN FUEL OIL STORAGE TANK	STEEL	NO. 2 FUEL OIL	1,000,000	07-29-92	08/11 30004348	08/11 MI HC710017	OPTION 3 08/11	08/11		08/11	08/11
H10	0OT527 h0ia-0o-t-527	AUX BOILER FUEL OIL DAY TANK	STEEL	NO. 2 FUEL OIL	18,000	12-17-92	30005157	08/11 MI HC710019	OPTION 1* 08/11			08/11	08/11

TABLE II-3D

UPCOMING PSEG NUCLEAR LLC TANK TESTING MATRIX AND SCHEDULE UNDER THE FIVE YEAR TESTING INTERVAL [1]

LOC. NO.	ID NUMBER	DESIGNATION	CONTAINER TYPE	PRODUCT TYPE	TANK CAPACITY (gal)	INITIAL INTEGRITY TEST DATE	NEXT INTEGRITY TEST DATE						
							AC	EX	IN	RT	SP	ST	UT
H14	0OT750 h0df -0o-t-750	AMMONIUM BISULFITE STORAGE TANK	COATED FRP	AMMONIUM BISULFITE	5,000	01-25-93	06/12 30005135	06/12 MIHC710024	06/12			06/12	
H24	0OT546 h0le - 0o-t-547	"USED OIL" HOLDING TANK	STEEL	PROCESS WASTEWATER	15,000	10-31-97	30003603	08/12 MIHC710025	OPTION 1* 08/12			08/12	08/12

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

Types of Integrity Testing: AC - Acoustic Emission; EX - External Visual; IN - Internal Visual; RT - Robotic Testing; SP - Spark Testing; ST - Static HeadUT - Ultrasonic Testing

Note: The Bureau has identified three alternatives to emptying and cleaning a steel tank every five years when performing internal inspections. When using one of these alternatives, it must be understood that the combination of both integrity testing and internal inspection must be performed. The "Option" identified under IN above indicates one of the following alternatives:

1. *If the tank is raised off the ground, such as on saddles, ultrasonic thickness measurements may be made around the entire tank at equidistant locations of no more than 1 foot spaced around the circumference of the tank and at least every 5 feet along the length of the tank; the tank ends must also be sampled at appropriate intervals. For vertical tanks, the base is to be inspected at 1 foot intervals from the centerpoint radiating along lines 90 degrees apart. If this option is used, the tank must be emptied and cleaned for direct internal examination if the test results indicate significant wall thinning or corrosion but in no case shall the interval between direct examinations exceed once every ten years. Significant corrosion for a particular tank is dependent on the service, construction, and environment of the tank and needs to be determined using accepted industry practice and best engineering judgement. If the tank has not undergone a direct internal inspection for more than 10 years, this option may only be used with prior written approval from the Department. This option is not acceptable for double walled tanks. If an asterisk appears, this is the last time this option can be invoked.*

2. *If the tank bottom is not accessible from the outside, ultrasonic thickness measurements may be made on the tank shell as described in Option 1 and no more than six inches from the base of the tank (chime area) in conjunction with acoustic emission testing being used to determine the condition of the tank bottom. If this option is used, the tank must be emptied and cleaned for direct internal examination if the test results indicate significant wall thinning or corrosion but in no case shall the interval between direct examinations exceed once every ten years. If the tank has not undergone a direct internal inspection for more than 10 years, this option may only be used with prior written approval from the Department. If an asterisk appears, this is the last time this option can be invoked.*

3. *The tank interior, bottom and shell, may be visually or ultrasonically examined using a robotic instrument. Again, the Department highly recommends performing ultrasonic tests on the tank bottom when doing this internal inspection. Depending on the substance stored, inspection without emptying the tank may or may not be an option. Acoustic emission testing may be used in conjunction with Option 3 if indeterminate robotic visual inspections are noted.*

Tanks that show signs of deterioration by any of the above tests must be taken out of service, emptied, cleaned, and repaired or retired. If the tank's interior bottom and shell cannot be adequately visualized or tested using any of the above methods, the tank must be emptied, cleaned and visually internally inspected.

As allowed by NJAC 7:1E-1.11(e), if a facility can demonstrate to the satisfaction of the Department that a particular method is appropriate to a tank's material of construction, size, and orientation and will adequately reveal the condition of the tank interior, this means of internal inspection will be considered acceptable upon evaluation and approval by the Department.

TABLE II-3D

UPCOMING PSEG NUCLEAR LLC TANK TESTING MATRIX AND SCHEDULE UNDER API 653[1]

LOC. NO.	*ID NUMBER*	*DESIGNATION*	*CONTAINER TYPE*	*PRODUCT TYPE*	*TANK CAPACITY (gal)*	*INITIAL INTEGRITY TEST DATE*	*NEXT INTEGRITY TEST DATE*		
							FE	*ISUT*	*OSI*
H47	10T573 hlzz-lo-t-573	VEHICLE REFUELING-GASOLINE	STEEL	GASOLINE	6,000	08-26-93 (NEW TANK)	09-02-08	07-18-131	08-26-13[2]
H48	10T572 hlzz-lo-t-572	VEHICLE REFUELING-DIESEL	STEEL	DIESEL FUEL	6,000	08-26-93 (NEW TANK)	09-02-08	07-18-13[1]	08-26-13[2]

ITEM NUMBERS REFER TO THE DPRP EQUIPMENT INVENTORY MAP

CPS - Condensate Polishing System
FRP - Fiberglass Reinforced Plastic
LRWTS - Liquid Radioactive Waste Treatment System
LVOW - Low Volume Oily Waste
NRLWDS - Non Radioactive Liquid Waste Disposal System
WTP - Waste Treatment Plant

NOTE: DPCC/DCR Regulations apply to all aboveground storage tanks
SPCC/FRP Regulations apply to all storage tanks containing petroleum products only
Shaded items represent equipment/components regulated by alternative compliance program accepted by NJDEP under NJAC 7:1E et seq.

Types of Integrity Testing: FE - Formal External Visual ISUT - In-Service Ultrasonic Thickness OSI - Out-of-Service Internal Visual

1. *External ultrasonic thickness (UT) measurements of the shell can be a means of determining a rate of uniform general corrosion while the tank is in service, and can provide an indication of the integrity of the shell. The extent of such measurements shall be determined by the owner/operator. When used, UT measurements shall be made not to exceed the following: when the corrosion rate is known, the maximum interval shall be the smaller of RCA/2N (where RCA is the remaining corrosion allowance in mils and N is the shell corrosion rate in mils per year) or 15 years (last UT measurements made on 7/18/03). It is also noted that this tank is in a horizontal position and rests on saddles with the bottom of the tank accessible to conduct UT measurements.*
2. *Intervals between internal inspections shall be determined by the corrosion rates measured during previous inspections or anticipated based on experience with tanks in similar service. The actual inspection interval shall be set to ensure that the bottom plate minimum thicknesses at the next inspection are not less than the value of the bottom plate minimum thickness (in this case 0.05 inches). In no case, however, shall the internal inspection interval exceed 20 years. It is also noted that this tank is in a horizontal position and rests on saddles with the bottom of the tank accessible to conduct UT measurements.*

Tanks that show signs of deterioration by any of the above tests must be taken out of service, emptied, cleaned, and repaired or retired. If the tank's interior bottom and shell cannot be adequately visualized or tested using any of the above methods, the tank must be emptied, cleaned and visually internally inspected.

TABLE II-4A
PSEG NUCLEAR LLC
COMPLETED UNDERGROUND PIPING TESTING MATRIX

STATION	PIPING	SYSTEM	TESTING FREQUENCY (YEARS)	DATE LAST INTEGRITY TEST PERFORMED									
				GRAVITY DROP	FIBER SCOPE	N2 LEAK TEST	SF6 LEAK DETECTION	SAMPLE	THERM IMAG	TRACER GAS	ROBOTIC	ULTRA SONIC	EXCAVATE
S	CIRC WATER CHLORINATION	CL-S01	3	05-06									
S	U1 DFO EMERGENCY FILL	DA-S01	3		07-08								
S	U2 DFO EMERGENCY FILL	DA-S02	3		08-05								
S	DIESEL FUEL OIL RECEIVING	DF-S01	3			06-06							
S	DFO TO FO FORWARD PUMPS	DF-S02	3	06-06									
S	BFP SUCTION HEADER	DF-S03	3	06-06									
S	BFP RETURN HEADER	DF-S04	3	06-06									
S	FO TO DIESEL FIRE PUMPS	DF-S05	3	06-06									
S	DFO TO U1 DIESELS	DF-S06	3	06-06									
S	DFO TO U2 DIESELS	DF-S07	3	06-06									
S	DFO TO SSW	DF-S08	3	06-06									
S	DFO TO CW	DF-S09	3	06-06									
S	DFO TO TSC DIESELS	DF-S10	3	06-06									
S	MTLO	TL-S01	3		08-05								
HC	SODIUM HYDROXIDE CAUSTIC RECEIVING	AK-001	3		05-08								
HC	SULFURIC ACID RECEIVING	AK-002	3		05-08								
HC	LUBE OIL DISCHARGE	CF-001	3		06-08								
HC	LUBE OIL RECEIVING	CF-002	3		06-08								
HC	CW CAUSTIC	DE-001	3					07-08					
HC	DE-CHLORINATION INLET	DF-001	3	07-05									

TABLE II-4A
PSEG NUCLEAR LLC
COMPLETED UNDERGROUND PIPING TESTING MATRIX

STATION	PIPING	SYSTEM	TESTING FREQUENCY (YEARS)	DATE LAST INTEGRITY TEST PERFORMED									
				GRAVITY DROP	FIBER SCOPE	N2 LEAK TEST	SF6 LEAK DETECTION	SAMPLE	THERM IMAG	TRACER GAS	ROBOTIC	ULTRA SONIC	EXCAVATE
HC	MGT RECEIVING	JA-001	3			11-06							
HC	AUX BOILER FO TO DAY TANK	JA-002	3	11-06									
HC	FO FROM DAY TANK TO FEED PUMPS	JA-003	3	05-07									
HC	FO RETURN TO DAY TANK	JA-004	3	05-07									
HC	AUX DIESEL FUEL OIL	JE-001	3			06-07							
HC	AUX DIESEL FUEL OIL RETURN TO MGT	JE-002	3			11-06							

TABLE II-4B
PSEG NUCLEAR LLC
UPCOMING UNDERGROUND PIPING TESTING MATRIX AND SCHEDULE

STATION	PIPING	SYSTEM	TESTING FREQUENCY (YEARS)	NEXT INTEGRITY TEST DATE									
				GRAVITY DROP	FIBER SCOPE	N2 LEAK TEST	SF6 LEAK DETECTION	SAMPLE	THERM IMAG	TRACER GAS	ROBOTIC	ULTRA SONIC	EXCAVATE
S	CIRC WATER CHLORINATION	CL-S01	3	05-09		2	3			4			5
S	U1 DFO EMERGENCY FILL	DA-S01	3		07-11	2	3				4		
S	U2 DFO EMERGENCY FILL	DA-S02	3		08-08	2	3				4		
S	DIESEL FUEL OIL RECEIVING	DF-S01	3			06-09	2			3	4	5	6
S	DFO TO FO FORWARD PUMPS	DF-S02	3	06-09		2	3			4			5
S	BFP SUCTION HEADER	DF-S03	3	06-09		2	3		5	4			6
S	BFP RETURN HEADER	DF-S04	3	06-09		2	3		5	4			6
S	FO TO DIESEL FIRE PUMPS	DF-S05	3	06-09		2	3			4			5
S	DFO TO U1 DIESELS	DF-S06	3	06-09		2	3			4			5
S	DFO TO U2 DIESELS	DF-S07	3	06-09		2	3			4			5
S	DFO TO SSW	DF-S08	3	06-09		2	3			4			5
S	DFO TO CW	DF-S09	3	06-09		2	3			4			5
S	DFO TO TSC DIESELS	DF-S10	3	06-09		2	3			4			5
S	MTLO	TL-S01	3		08-08	2	3				4		
HC	SODIUM HYDROXIDE CAUSTIC RECEIVING	AK-001	3		05-11	2	3		4		5		6
HC	SULFURIC ACID RECEIVING	AK-002	3		05-11	2	3				4		5
HC	LUBE OIL DISCHARGE	CF-001	3		06-11	2	3				4	5	6
HC	LUBE OIL RECEIVING	CF-002	3		06-11	2	3				4	5	6
HC	CW CAUSTIC	DE-001	3			4	5	07-11	2	3			6
HC	DE-CHLORINATION INLET	DF-001	3	07-08		4	5		3	2		6	7

TABLE II-4B
PSEG NUCLEAR LLC
UPCOMING UNDERGROUND PIPING TESTING MATRIX AND SCHEDULE

				NEXT INTEGRITY TEST DATE									
STATION	*PIPING*	*SYSTEM*	*TESTING FREQUENCY (YEARS)*	*GRAVITY DROP*	*FIBER SCOPE*	*N2 LEAK TEST*	*SF6 LEAK DETECTION*	*SAMPLE*	*THERM IMAG*	*TRACER GAS*	*ROBOTIC*	*ULTRA SONIC*	*EXCAVATE*
HC	MGT RECEIVING	JA-001	3			11-09				2	4	3	5
HC	AUX BOILER FO TO DAY TANK	JA-002	3	11-09		4	5		3	2		6	7
HC	FO FROM DAY TANK TO FEED PUMPS	JA-003	3	05-10		2	3		5	4		6	7
HC	FO RETURN TO DAY TANK	JA-004	3	05-10		4	5		3	2		6	7
HC	AUX DIESEL FUEL OIL	JE-001	3			06-10	2			3		4	5
HC	AUX DIESEL FUEL OIL RETURN TO MGT	JE-002	3			11-09	2			3		4	5

THE DATE ASSOCIATED WITH EACH PIPING SYSTEM INDICATES THE PRIMARY PROPOSED TESTING TECHNIQUE FOR THAT SYSTEM; THE NUMBERS INDICATE THE SEQUENCE FOR SUBSEQUENT TESTING.

TABLE II-5
FACILITY / EQUIPMENT UPGRADE PLAN
NJAC 7:1E-2.4(c)

PHASE	*ITEM DESCRIPTION*	*ESTIMATED COMPLETION DATE*
I	ASSEMBLE AND REVIEW DESIGN DRAWINGS AND TECHNICAL DATA FOR UNDERGROUND PIPING AT THE SALEM AND HOPE CREEK NUCLEAR GENERATING STATIONS SUBJECT TO THE DPCC REGULATIONS AT NJAC 7:1E-2.4(c) TO IDENTIFY SUITABLE TEST METHODOLOGIES.[1]	COMPLETED
II	DEVELOP PLAN FOR THE INSPECTION, MAINTENANCE, AND/OR REPAIR PROGRAM AND SCHEDULE [2] FOR IMPLEMENTATION UPON COMPLETION OF PHASE I ABOVE.[3]	COMPLETED; SEE TABLE II-4B FOR UPCOMING TESTING MATRIX AND SCHEDULE
III	COMPLETE INITIAL UNDERGROUND PIPING INSPECTION, MAINTENANCE, AND/OR REPAIR.	SEE TABLE II-4A FOR COMPLETED TESTING MATRIX

1. All underground in-facility pipes directly associated with tanks storing hazardous substances as defined by NJAC 7:1E-1.7 are addressed by this program. Any underground piping associated with NJPDES and/or Treatment Works Approval ("TWA") regulated facilities are addressed following rules and regulations established with corresponding NJPDES and TWA regulatory programs.

2. When safety-related systems are affected, the testing schedule takes into account the regularly scheduled outages for each of the Generating Stations. Salem and Hope Creek Generating Stations are base-load nuclear units.

3. PSEG Nuclear has developed methods based on API 570 or alternate methods in compliance with NJAC 7:1E-1.1(e).

PART III

SPILL/DISCHARGE RESPONSE PLAN

PART III: SPILL/DISCHARGE RESPONSE PLAN III-1

PART III: SPILL/DISCHARGE RESPONSE PLAN

(40 CFR 112.7(a)(3)(iv); 40 CFR 265.52(a))

This part of the DPRP incorporates the requirements of the NJDEP DCR Plan (NJAC 7:1E-4.3), the USEPA FRP (40 CFR 9 and 112), and the USEPA Hazardous Waste Contingency Plan (40 CFR 265 Subparts C and D). It also outlines procedures for notifying management, government agencies, facility cleanup personnel and contractors of a discharge of oil or other hazardous substance to the soil or waters of the State.

A summary of the action plan in responding to and minimizing health and environmental dangers from fires, explosions, or discharges of hazardous substances, including the deployment of personnel and equipment, the chain of command for a discharge response action and notification procedures, pursuant to NJAC 7:1E-5 and Appendix F to 40 CFR 112, is described in Section 4, Discharge Response Procedures, of this Part.

A plan identifying priorities for the offsite deployment of personnel and equipment to protect residential, environmentally sensitive, or other areas from a discharge based on use, seasonal sensitivity, or other relevant factors is described in Section 4.2.2, Prioritization, of Part IV: Environmentally Sensitive Areas Protection Plan.

SECTION 1: SPILLS AND DISCHARGES

1.1 REPORTABLE DISCHARGES

(NJAC 7:1E-4.2(b)11; 40 CFR 112, Appendix F, Sections 1.4.3 and 1.4.4)

A reportable discharge is any incident that results in the release of a hazardous substance either into the waters or onto the lands of the State unless in compliance with a valid Federal or State permit or the supporting permit application. Reportable discharges require immediate (15 minutes) notification of authorities. Discharges that do not enter the water, which are cleaned up within 24 hours, and which do not require notification to other authorities, do not require notification of the NJDEP. A summary of spill/discharge notifications to the NJDEP for the previous 60 months (2003-2007) is presented in Volume 2, Appendix C. Copies of the reports are on file with the Regulatory Affairs Department.

1.1.1 Non-Reportable Spills/Leaks

(NJAC 7:1E-5.3(e) and 5.3(f))

A leak or spill of any quantity of a hazardous substance into its containment structure or other impermeable surface, such as asphalt or concrete, is not a discharge and does not require notification of State authorities, provided that the spill is fully contained and does not escape to the environment (i.e., lands or waters of the State), and can be cleaned up within 24 hours. A leak or spill of a hazardous substance that is diverted to a treatment facility is not a discharge. Use of chemicals for neutralization of chemical spills or discharges shall not be reportable discharges if they are identified for such use in Section 11 of this Part.

For the purposes of DPCC/DCR compliance, any spills confined to the engineered fill within the industrial site and cleaned up within 24 hours will be considered contained unless during the course of the cleanup activities evidence is obtained demonstrating groundwater contact.

Furthermore, a discharge which is not required to be reported under any other State or Federal statute, rule or regulation is not required to be reported to the NJDEP pursuant to NJAC 7:1E-5.3(a) provided the discharge meets the conditions described in 1 or 3 below:

1. The discharge occurs at a facility for which a DPCC and DCR Plan pursuant to NJAC 7:1E-4.6, or a Risk Management Plan pursuant to NJAC 7:31, or an Emergency Contingency Plan pursuant to NJAC 7:26-12 or a Response Plan pursuant to 40 CFR 112 has been approved; and

   a. Has not entered any waters of the State or migrated off-site;

   b. Within 24 hours of when any person responsible for the discharge knows or reasonably should have known of the commencement of the discharge, is:

      i. Stopped and contained in conformance with the approved plan in 1 above; and

      ii. Cleaned up and removed, including any contaminated soil, in accordance with the applicable State or Federal regulations for cleanup and remediation, including the storage and disposal of cleanup related materials; and

   c. The owner or operator of the facility documents his or her actions in accordance with NJAC 7:26E, and maintains and makes available for NJDEP review at either the facility or the NJDEP's offices at the discretion of the NJDEP, such records for three (3) years from the date of the discharge.

2. If the owner or operator determines that all requirements of 1i and 1ii above cannot be met, the owner or operator shall notify the NJDEP immediately upon making such a determination, but in any case, within 24 hours of when any person responsible for the discharge knows or reasonably should have known of the discharge.

3. The discharge of transformer fluid from a transformer which does not contain polychlorinated biphenyls in concentrations of 50 parts per million or greater which either occurs during a state of emergency declared by the Federal, State or local government, provided such discharge is reported to the NJDEP within 24 hours of the termination of the state of emergency, or:

   a. The discharge is less than 25 gallons;

   b. The discharge has not entered any waters of the State, or any storm drain leading to any waters of the State;

   c. Within 24 hours of when any person responsible for the discharge knows or reasonably should have known of the discharge, the discharge is cleaned up and removed in accordance with the applicable State or Federal regulations for cleanup and remediation, including the storage and disposal of cleanup related materials; and

   d. The person responsible for the discharge documents his or her actions in accordance with NJAC 7:26E, and maintains and makes available for NJDEP review at either the facility or the NJDEP's offices at the discretion of the NJDEP, such records for three (3) years from the date of the discharge.

The following conditions shall be met in order for any release of a hazardous substance consequent to a motor vehicle accident to be considered a leak not requiring notification pursuant to NJAC 7:1E-5.3(a):

1. The hazardous substance has not entered any waters of the State, or any storm drain leading to any waters of the State;

2. The hazardous substance is contained on a paved roadway; and

3. Prior to its escape to lands or water of the State, the hazardous substance is cleaned up and removed in accordance with the applicable State or Federal regulations for cleanup and remediation, including storage and disposal of cleanup related materials.

In addition, any initial reports to the NJDEP of discharges to ground surface will be retracted by the Chemistry, Radwaste and Environmental Supervisors upon confirmation of non-contact with groundwater during the cleanup.

1.2 SPILL DIVERSION SYSTEM

PSEG Nuclear LLC has onsite NJPDES permitted wastewater collection and treatment systems. The buildings act as secondary containment for spills or leaks within the Power Plant which are directed into the building floor sumps and pumped to the appropriate treatment systems for processing, prior to their release to the Delaware River in accordance with the current NJPDES permits.
In the case of storage and process areas outside of the facility buildings, any spills are either contained or diverted into the treatment systems, or collected for offsite disposal as needed. The facility is authorized by the NJDEP to discharge liquid effluents through the NJPDES Permitting Program. Any release into the River can only occur at discharge points identified with unique Discharge Serial Numbers (DSNs) and monitored in accordance with the NJPDES permits. Each DSN is assigned limitations on the quality of the effluent and is monitored for compliance.

Diversion/Treatment Systems at Salem and Hope Creek Generating Stations are as follows:

<u>Salem</u>

- Non-Contact Cooling Discharge;
- Liquid Radioactive Waste Disposal System;
- Industrial Wastewater Treatment System
  (a.k.a. Non-Radioactive Liquid Waste Disposal System);
- Oil/Water Separator; and

- Yard Drainage System.

Hope Creek

- Liquid Radioactive Waste Treatment System;
- Low Volume and Oily Waste Treatment System;
- Yard Drainage System;
- Cooling Tower Blowdown; and
- Sewage Treatment Plant.

A detailed discussion of the diversion and treatment systems are presented in Part II, Section 2.4.2.

1.3 SPILL ASSESSMENTS

In case of a spill to the treatment facilities or diversionary systems, operating conditions allow the spill to be contained, diverted, treated, neutralized, or otherwise isolated at various locations within the systems for subsequent cleanup and removal to prevent release to the waters or lands of the State. The flow paths through the diversionary/treatment system is shown in Part II, Figures II-1 and II-2, The Schematics of Water Flow for Salem and Hope Creek, respectively. Spills may be isolated in the Power Plant Building sumps, or in the holding or treatment tank of one of the diversion/treatment systems listed in Section 1.2. The isolated spill will be sampled, tested, and neutralized or hauled to an offsite permitted disposal facility.

SECTION 2: DISCHARGE RESPONSE PERSONNEL

(NJAC 7:1E-4.3(b)6; 40 CFR 265.37(a)(1), 265.37(a)(2) and 265.52(d); 40 CFR 112, Appendix F, Sections 1.2.5, 1.3(A)(5), 1.3(B) and 1.7.1)

2.1 QUALIFIED FACILITY PERSONNEL

(NJAC 7:1E-4.3(a) and 4.3(b)1)

When a spill/discharge occurs, on scene response actions are directed by a response coordinator who hereafter is referred to as the Discharge Response Coordinator, or DRC. (The DRC is also known as the Qualified Individual, or QI, in reference to the USEPA FRP). This role is filled by the on-duty Nuclear Fire Protection Supervisor (NFPS). The DRC directs the onsite Fire Department which provides first response as the site Spill Management Team (SMT). Names and telephone numbers of Nuclear Fire Protection Supervisors (NFPSs) trained as DRCs are provided under the Telephone Numbers Tab. Duties and responsibilities are discussed in detail later in this Section.

Facility personnel are qualified to cleanup incidental small spills and discharges of petroleum and hazardous substances which they routinely handle in their areas of responsibility. In such instances, the DRC will not summon the SMT (Fire Department), but instead rely on the individuals to cleanup the spilled or discharged material.

The Operations Superintendent (OS), Fire Protection Supervisors, Fire Protection Operators, PSEG Nuclear LLC Maintenance Supervisors and Personnel, and Chemistry, Radwaste and Environmental Supervisors, have specific functions in spill/discharge response activities. These employees are provided with introductory and technical training as described in Part II, Section 2.11, Training Program, and are qualified to operate discharge response equipment based on individual qualifications. Furthermore, Fire Department employees receive additional training and are available 24-hours a day to respond to discharges of oil, other petroleum products or hazardous substances.

2.2 FIRE DEPARTMENT/SPILL MANAGEMENT TEAM

The onsite Fire Department will act as the Spill Management Team (SMT). The NFPS provides technical oversight to Fire Protection personnel. These personnel are equipped and trained to respond to fires, explosions, and spills or discharges of petroleum products, hazardous substances or hazardous wastes.

In case of a spill or discharge, anyone may contact the Operations Superintendent (OS) by calling extension 3333 from any telephone located at the facility. The OS then contacts the Fire Department to investigate/respond to the incident and initiate containment and cleanup actions promptly.

2.3 DISCHARGE RESPONSE COORDINATOR

(NJAC 7:1E-4.3(b)1 and 4.3(b)2; 40 CFR 265.55; 40 CFR 112, Appendix F, Section 1.3(A)(7))

The DRC(s) is present at the facility 24-hours a day. The on-duty NFPS is the designated facility DRC. The DRC is responsible for the coordination of on scene discharge response activities at the facility, and is familiar with the DPRP, facility operations and activities, the locations and characteristics of hazardous substances, facility layout, location of records, and the locations of Economically Important and Environmentally Sensitive Areas (EI/ESAs) within 15 miles of the facility.

The OS would activate the DRC. Since the OS manages operations at the facility at all times, all discharge notifications by facility personnel will be initially reported to the OS. Normally, this notification procedure (Section 5, this Part, Notification to Authorities) provides for the most efficient and timely communication in case of a discharge. The OS has access to all areas of the facility and has full authority to commit and/or requisition the resources required to execute this Program. Figure III-1 presents PSEG Nuclear LLC Spill/Discharge Response Organization Chart.

Fire Protection Supervisors are onsite at all times to coordinate all discharge response measures. Names and telephone numbers of key fire protection personnel trained as DRCs are provided under the Telephone Numbers Tab.

In addition, the DRC serves as a liaison between the facility and the Federal On-Scene Coordinator (FOSC). The FOSC may be from the USEPA or the USCG depending upon the type and location of discharge that occurs. The DRC also has the authority, through the OS, to obligate funds required to carry out all necessary or directed response activities.

Based on the Spill/Discharge Response Organization Chart (Figure III-1), the following positions will provide assistance to the DRC on an as-needed basis. Should any of these positions be unmanned during a discharge incident, the DRC has the qualifications and authority to assume responsibilities associated with these positions himself or delegate them to other qualified members of the Fire Department.

Compliance Advisor:

The Compliance Advisor (CA) is the Environmental Coordinator. These responsibilities are handled by the Chemistry, Radwaste and Environmental Supervisor. The name and telephone numbers of the CA are provided under the Telephone Numbers Tab. The CA is familiar with the Discharge Prevention and Response Program (DPRP), and related environmental regulations. The CA is qualified to provide valuable multi-disciplinary environmental compliance information to the DRC and has the support of the Director - Regulatory Affairs. The CA or his designee(s) will also assist the DRC with remedial action and response plans and disposal activities including approvals for offsite disposal sites. All written notifications and follow-up reports will be prepared by the CA or his designees.

Discharge Response / Cleanup Contractor:

Upon responding to a discharge response call, discharge response/cleanup contractors will take commands from the active DRC.

2.3.1 Notification Authority

Upon notification of a discharge of oil or hazardous substance(s), the DRC will follow the prescribed notifications and response procedures as set forth in Section 4.

2.3.2 Response Authority

(NJAC 7:1E-4.3(b)1)

The OS, the Salem and Hope Creek Operations Managers, and all designated response coordinators have full authority to hire contractors and expend funds for discharge response, containment, cleanup, and removal pursuant to NJAC 7:1E-4.3(b)1.

2.3.3 Long Term Response and Cleanup Authority

Should a discharge occur which is beyond the ability of the DRCs to manage within the scope of their delegated authority, the OS may, after initial containment and control of the discharge has been established, request that the Vice President - Site Operations designate an individual with the authority to allocate needed resources for the long term response and cleanup of the discharge.

SECTION 3: DISCHARGE RESPONSE EQUIPMENT

(NJAC 7:1E-4.3(b)5; 40 CFR 265.32 and 265.52(e); 40 CFR 112, Appendix F, Sections 1.3(A)(3), 1.3(A)(4), 1.3(B), 1.7.1, 1.7.2 and 1.8.2)

3.1 ONSITE EQUIPMENT

(40 CFR 265.32(d), 265.33 and 265.56(h)(2); 40 CFR 112, Appendix F, Section 1.8.1.2)

The Fire Department maintains a variety of discharge response equipment at the facility, selected and positioned to provide maximum onsite discharge response capabilities. In addition to the discharge response equipment listed herein, the Nuclear Fire Department has available a variety of fire fighting capabilities including, but not limited to, portable fire extinguishers, permanent sprinklers, foam, dry chemical and Halon fire suppression systems. PSEG Nuclear LLC's water supply capacity is in excess of 2,500 gpm in addition to a minimum of 1,256,000 gallons on hand.

Nuclear Department Fire Protection Procedure ND.FP-PM.ZZ-0006(Z) provides locations and physical descriptions of discharge response equipment and supplies maintained by the Fire Department. This procedure ensures that spill control equipment is inventoried on a monthly basis. During the inventory check and equipment inspection, all equipment should be accounted for and in good condition or corrective action must be initiated immediately. All deficiencies and corrective actions taken are documented; when applicable, the equipment is tested by operating it as it would be normally used and the results recorded. Subsequent to each scheduled discharge response drill described in Section 4.4 of this Part, deficiencies are identified and discussed. An action plan is then developed and implemented to ensure that all deficiencies are corrected. The general description of the discharge response equipment and supplies available at the facility is contained under the Discharge Response Equipment Tab.

The Fire Station stores the majority of the response equipment. Three other areas located onsite have response equipment staged for immediate use as well. Equipment is currently stored at the Hope Creek Barge Slip Haz-Mat Spill Control Cabinet, the Salem Unit 2 Turbine Cabinet, located on the 100-foot elevation on the west side of the condensers at Salem Unit 2, and the Boat House. In addition, some response equipment is also stored in the Fire Protection Truck for quick mobilization. Additional materials are located in the Haz Mat Trailer and Boom Trailer.

Expendable containment equipment is restocked after use. A monthly inventory check is performed by personnel from Fire Protection or Supply Chain Management for restocking.

Fire protection devices and structures are mandated by the Nuclear Regulatory Commission for the protection of PSEG Nuclear LLC facilities. Fire extinguishers, fire alarm pull boxes, automatic fire suppression systems, and a fully equipped onsite Fire Department provide a coordinated fire protection capability. Fire truck, hydrants, water tanks, earth moving equipment, and other heavy equipment can be utilized during a discharge incident to terminate, control and remediate any hazard until qualified support organizations can be mobilized as needed to handle the incident.

3.2 DISCHARGE RESPONSE AND CLEANUP CONTRACTORS

(NJAC 7:1E-4.3(b)6; 40 CFR 265.37(a)(3) and 265.52(c); 40 CFR 112, Appendix F, Section 1.3(A)(5))

If a discharge or spill incident requires additional manpower and/or equipment for containment and cleanup, PSEG Nuclear LLC will obtain the assistance of licensed cleanup or discharge response organizations. Depending upon contractor response time and availability, one or more of the cleanup contractors listed under the Telephone Numbers Tab may be contacted. Some of these contractors provide 24-hour discharge response support. Copies of all current contracts with cleanup contractors are included under the Discharge Response Equipment Tab.

Presently, the following discharge response/cleanup organizations are under contract with PSEG Nuclear LLC to provide needed response support:

Discharge Response Contractors

Clean Harbors Environmental Services, Inc. (CHI)
Deptford, NJ

Delaware Bay and River Cooperative, Inc. (DBRC)
Lewes, DE

BECA Environmental Consultants, Inc. (BECA)
Seabrook, NJ

Tri-State Bird Rescue and Research (TSB)
Newark, DE

Clean Venture, Inc. (CV)
Elizabeth, NJ

Veolia Environmental Services
Moon Township, PA

The OS and the following personnel as designated by the OS are authorized to bring in outside cleanup contractors:

- Fire Protection Supervisor; and
- Maintenance Services - Yard Supervisor.

Additional resources are available as authorized in Section 2.3.2.

3.3 OTHER SOURCES OF EQUIPMENT

(NJAC 7:1E-4.3(b)5 and 4.3(b)6; 40 CFR 265.37(a)(3) and 265.52(c); 40 CFR 112, Appendix F, Section 1.3(A)(5))

PSEG Nuclear LLC is a member of the Delaware Bay and River Cooperative, Inc. (DBRC) Oil Spill Removal Organization (OSRO), which can be called upon to assist in the event of a discharge of oil to the Delaware River. In addition to the equipment owned and operated by the DBRC, its member companies make large and small discharge abatement equipment such as skimmer vessels and booms, etc., available to each other. The strategies and guidances for boom deployment, dispersant use and shoreline countermeasures are presented in Appendices D, E, and F of the DBRC's Oil Spill Response Plan, respectively. The DBRC Oil Spill Response Plan and Appendices are incorporated by reference into this DPRP. The DBRC has long-term arrangements with spill response contractors to assist members with discharge cleanup and removal along the Delaware River. The DBRC Oil Spill Response Plan is included in Volume 2, Appendix I. The DBRC equipment deployment program exceeds the requirements of the National Preparedness for Response Exercise Program (PREP) Guidelines. The DBRC's response equipment deployment certification is also presented in Volume 2, Appendix I.

The OS and NFPS can activate the response capabilities of the OSROs.

In addition, PSEG Nuclear LLC is a member of a Local Emergency Planning Committee (LEPC). The agreement with the LEPC is provided in Volume 2, Appendix J.

SECTION 4: DISCHARGE RESPONSE PROCEDURES

(NJAC 7:1E-4.3(b)3; 40 CFR 265.56(a); 40 CFR 112, Appendix F, Section 1.3(B))

Discharge response actions and notification requirements during a spill or discharge incident of a hazardous substance are described in the following Sections.

Any non-radiological spill or discharge which occurs at the facility is reported to the applicable Station Operations Superintendent (OS). The OS consults the Station specific Event Classification Guide (ECG) for the notification procedures. Those procedures are discussed in Section 8, Attachment 16, of Salem and Hope Creek ECGs.

A hazardous substance Spill/Discharge Response Logic Diagram, prepared to assist the DRC with the implementation of these procedures, is presented in Figure III-2.

4.1 REPORTING OF DISCHARGES

(40 CFR 112, Appendix F, Section 1.6.1)

Any employee who discovers the potential for or an actual discharge of a hazardous substance(s) immediately notifies the OS by dialing telephone extension 3333. The reporting employee will provide any information that they have relating to the spill/discharge.

4.2 IMMEDIATE ACTION PLAN

(NJAC 7:1E-4.3(b)7 and 4.3(b)8; 40 CFR 265.56(b) and 265.56(c); 40 CFR 112, Appendix F, Sections 1.3(A)7, 1.6.1 and 1.7.1)

The OS will immediately take the following actions:

1. Contact the DRC/Fire Department which will provide immediate (first) response for containment, cleanup, and removal of the hazardous material or hazardous waste spill/discharge;

2. Provide immediate required notifications to regulatory authorities and agencies (Refer to Section 5, Notification to Authorities);

3. Contact the Chemistry, Radwaste and Environmental Supervisors for follow-up notifications.

The on-duty DRC will take the following actions:

1. Conduct an initial assessment to identify the character, exact source, amount, and extent of any potential or actual discharge. The following information will be gathered during this assessment for notification and reporting purposes:

- Location of the discharge;
- Substance(s) involved;
- Quantity;
- Status of discharge: contained, controlled, uncontrolled, etc.;
- Date and time of discovery;
- Date and time at which the discharge began;
- Date and time at which the discharge ended;

- Description of the incident; and
- Ongoing actions to contain/cleanup the discharge.

2. Assess potential hazards to human health or the environment that may result from the spill or discharge;

3. With OS's concurrence, contact discharge response/cleanup contractor(s). In the event of a discharge to the Delaware River, additional assistance can also be requested from the DBRC. Telephone numbers for the DBRC and contractor(s) are listed under the Telephone Numbers Tab for information only;

4. Maintain contact with the Chemistry, Radwaste and Environmental Supervisors, or his designees, to determine ongoing reportability of the event; and

5. Notify outside organizations or governmental agencies with response roles, including LEPC (See Volume 2, Appendix J), if their assistance is needed. Telephone numbers for these outside organizations are listed under the Telephone Numbers Tab for information only.

NOTE: Contacting other government agencies in itself may invoke a 10 CFR 50.72 report requirement (4 hours) and the OS must be so informed by the Chemistry, Radwaste and Environmental Supervisors in order to assure timely notification of the Nuclear Regulatory Commission.

4.3 SUMMARY RESPONSE ACTION PLAN

(NJAC 7:1E-4.3(b)7; 40 CFR 265.56(e); 40 CFR 112, Appendix F, Sections 1.3(A)(7), 1.6.1 and 1.7.1)

In the event of a discharge of oil to the Delaware River, the Oil Spill Removal Organization (OSRO) may be called upon to assist the discharge response and cleanup. The generic health and safety plan specified in the DBRC Oil Spill Response Plan or the generic health and safety plan from the Core Plan will be activated and adhered to, prior to any cleanup actions. A command center will be set up in accordance with Volume 2, Appendix N, Communications Plan.

The following is a general description of response actions to characterize, contain, and remove spills and discharges that could potentially occur at the Salem and Hope Creek Generating Stations. The response actions and health and safety measures described below will be initiated as needed by the DRC in accordance with the Station ECG. The primary objective of all response actions is to contain a spill or leak for the protection of human health and the environment.

Normally, first non-operator response to any spill or discharge will be provided by the Fire Department. The Fire Protection Supervisors have received discharge response training and are the designated DRC during such events. The following response actions will be taken during a discharge incident:

1. Activate the necessary response procedures safeguarding the health and safety of response personnel;

2. Classify, identify, and verify known and unknown materials using available equipment;

3. Select and use proper specialized chemical protective clothing;

4. Utilize hazard and risk assessment techniques;

5. Perform control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available; and

6. Perform initial cleanup/chemical decontamination to prevent migration of the discharge material.

Maintenance Services may be called in to help in the cleanup and disposal of the spill/discharge material outside of the Power Blocks area and Operations personnel inside the Power Blocks area. Maintenance Services or other organizations provide the following support during a spill/discharge:

1. Cleanup and containerize bulk spill residue;

2. Initiate area final cleanup; and

3. Activate cleanup contractors for assistance, if necessary.

Remediation actions specific to the type of spill/discharge would be undertaken immediately after initial response.

4.3.1 Discharges Onto the Ground

If a hazardous material is discharged onto the lands of the State (e.g., soil, grass, stones or other permeable surfaces), an evaluation of the appropriate response will be made which may include excavation of the contaminated area, chemical neutralization, or any other means necessary to prevent a discharge to groundwater or surface water. Discharges onto the ground (See Section 1.1 Reportable Discharges) will be reported as described in Section 5, Notification to Authorities.

4.3.2 Discharges Into Groundwater

The unique geologic setting, the plant configuration as described in Part II, Section 2, and soil compaction procedures adopted during site preparation and plant construction are expected to impede or delay the flow of any discharged hazardous materials to the groundwater. This is further evidenced by the results of hydraulic conductivity tests conducted on soil samples taken at the site by Stevens Institute of Technology, which are included in Volume 2, Appendix K.

If a discharge to the groundwater occurs, site characterization and site remediation will be in accordance with appropriate State regulations, such as NJDEP's rules for site remediation and cleanup.

4.3.3 Discharges to Surface Water

Response to a discharge of a hazardous material onto surface water will be in accordance with Sections 4.3 and 4.4 of Part IV: Environmentally Sensitive Areas Protection Plan and the Station ECG.

4.3.4 Fires and Explosions

Response to fires and explosions that cause or could potentially cause a discharge of a hazardous substance are in accordance with the Salem and Hope Creek ECG which classifies and prioritizes resources and response actions.

In the event of fire during transfer operations, the following steps will be followed:

1) Stop all transfer operations and immediately contact the Operations Superintendent (OS) by dialing extension 3333;

2) The OS will consult the ECG for notification and reporting requirements.

4.4 DISCHARGE RESPONSE DRILLS/EXERCISES

(NJAC 7:1E-4.3(b)4; 40 CFR 112.7(f); 40 CFR 112, Appendix F, Sections 1.3(A)(4), 1.7.1, and 1.8.2)

The objective of the discharge response drill/exercise is to determine the currency and adequacy of and personnel familiarization with the Discharge Response Action Plan described in this Section.

4.4.1 Conduct

Internal and external drills/exercises are conducted in accordance with the National Preparedness for Response Exercise Program (PREP) guidelines. The internal drills/exercises include DRC notification drills, spill management team tabletop exercises, equipment deployment exercises, and unannounced exercises. The external drills/exercises include area exercises. Two discharge response drills/exercises involving hazardous substances are conducted annually. These drills/exercises may be combined with other response drills/exercises (e.g., OSHA, fire, nuclear emergency, medical emergency, evacuation, etc.). Planning for drills/exercises typically includes:

1. Basic objectives;
2. Dates, times, and places;
3. Development of drill scenario;
4. Participating organizations;
5. Approximate schedule of events;
6. Predrill briefing conference;
7. Arrangements for qualified observers; and
8. Appropriate critique of drills/exercises with participants.

Drills/exercises are conducted as planned and scheduled according to a pre-developed scenario. Observers will maintain a written list of comments and observations.

4.4.2 Critique

A critique will be held following each drill/exercise. The critique can be a meeting or the result of a deliberate investigation of the spill/discharge incident attended by key personnel which may involve:

- All drill/incident participants;
- Station Representative(s);
- Fire Protection Management;

- Fire Protection Supervisor;
- Environmental Representative; and
- Other personnel having spill/discharge prevention responsibilities.

Observers and participants will discuss any deficiencies in each drill/exercise and in its implementation. A list of follow-up actions may be developed by the Chemistry, Radwaste and Environmental Supervisor and the Regulatory Affairs Department. An action plan is then developed, distributed, and implemented to ensure that all deficiencies are corrected. All critiques are retained pursuant to the recordkeeping requirements of NJAC 7:1E-2.15.

4.5 MEDICAL SUPPORT

(40 CFR 265.37(a)(4) and 265.52(c))

The Memorial Hospital of Salem County has agreed to provide medical support to PSEG Nuclear LLC personnel involved in either radiological or non-radiological accidents. PSEG Nuclear LLC Fire Department personnel provide qualified EMT coverage on a 24-hour basis.

4.6 LOCAL POLICE

(40 CFR 265.52(c))

Lower Alloways Creek Township (LACT) Police patrol the Access Road and parking lots at the facility under New Jersey Statutes Annotated (NJSA), Title 39 - Motor Vehicles and Traffic Regulation. In a spill/discharge situation where evacuation of the generating stations is necessary, the New Jersey State Police can be reached through the Nuclear Emergency Telecommunications System.

4.7 EVACUATION PLANS

(40 CFR 265.32(a), 265.32(b), 265.34(a) and 265.52(f); 40 CFR 112, Appendix F, Sections 1.3(A)(6) and 1.9)

Evacuation plans for emergencies are in the Emergency Plans for PSEG Nuclear LLC. It is highly unlikely that a total evacuation of the facility would be required in the event of a spill/discharge of hazardous materials. This is due to the fact that all hazardous materials at the facility are maintained by proper containment and/or diversion systems to prevent the largest probable spill within the facility from flowing, draining or leaching onto the lands or navigable waters. Further, due to the remote location of this facility, only onsite personnel are likely to be affected by any spills or discharges. The details of containment and diversion systems are described in Part II, Section 2.4, Secondary Containment/Diversion Systems. PSEG Nuclear LLC maintains various means of notification to personnel both on and offsite. These include in-plant intercoms, personal pagers, telephones, cellular phones, two-way radios, and an area emergency siren system.

SECTION 5: NOTIFICATION TO AUTHORITIES

(NJAC 7:1E-4.3(b)3, 5.3(a) and 5.3(b); 40 CFR 265.56(a) and 265.56(d); 40 CFR 112, Appendix F, Section 1.3(B))

Discharges, as defined in Section 1.1, require immediate notification of the NJDEP (i.e., within 15 minutes) at 1-877-WARNDEP (1-877-927-6337). Discharges that do not enter the lands or waters of the State, which are cleaned up within 24 hours, and which do not require notification to other authorities, do not require notification of the NJDEP. If the NJDEP hotline number is inoperable, immediate notification of the State Police is required at (609) 882-2000. If the discharge involves a release of petroleum into water, in any amount, notification of the National Response Center (NRC) (33 CFR Part 153), Lower Alloways Creek Township (LACT) Office of Emergency Management, and Salem County Office of Emergency Management must also be made. Initial notification should be made immediately and should not be delayed pending collection of all information. The contact telephone numbers are provided in the ECG. The OS makes all immediately required notifications.

A discharge that involves a release of a hazardous substance in excess of its respective CERCLA reportable quantity, listed in Reportable Quantities (RQ) Table (Tab), will also require immediate notification of other agencies. The hazardous substance Spill/Discharge Response Logic Diagram (Figure III-2) provides further guidance for reportable spill/discharge notifications. These notifications would be made by Chemistry, Radwaste and Environmental Supervisors in consultation with the OS.

5.1 NOTIFICATION PROCEDURE

(NJAC 7:1E-5.3(c), 5.8(a), 5.8(c) and 5.8(e); 40 CFR 265.56(i))

5.1.1 Reportable Spills and Discharges

If it is determined that the spill/discharge event is reportable under NJAC 7:1E, the OS will make the required notification in accordance with the ECG.

Chemistry, Radwaste and Environmental Supervisors will evaluate each discharge incident to determine if the spill/discharge is reportable. If the spill/discharge is not reportable, Chemistry, Radwaste and Environmental Supervisors will advise the OS and the NJDEP of its non-reportability. If the spill/discharge is reportable, Chemistry, Radwaste and Environmental Supervisors will make the following additional notifications:

1. Contact any additional Federal, State, and local environmental agencies as detailed in the hazardous substance Spill/Discharge Response Logic Diagram (Figure III-2). These additional notifications are dependent on the specific substance type and quantity of spill or discharge, where it occurs, and where it ultimately goes (i.e., Delaware River).

2. Within 5 days after a discharge to a waterbody that results in a NJPDES violation, Chemistry, Radwaste and Environmental Supervisors submits a written report on the incident to the NJDEP. (This 5-day report does not alleviate the need to submit the 30-day report detailed in Item 3 below). The report must include, but not be limited to:

    a. Name, address, and telephone number of the owner or operator;

    b. Name, address, and telephone number of the facility;

    c. Date, time, and type of incident;

    d. Name and quantity of material(s) involved;

    e. The extent of injuries, if any;

    f. An assessment of actual or potential hazards to human health or the environment, where this is applicable;

    g. Assessment of the scope and magnitude of the problem; and

h. Description of the immediate actions that have been taken and the estimated quantity and disposition of recovered material that resulted from the incident.

3. Within 30 days of any reportable discharge under NJAC 7:1E, Chemistry, Radwaste and Environmental Supervisors will issue a more detailed report of the incident to the NJDEP at the following address:

   Bureau of Release Prevention
   New Jersey Department of Environmental Protection
   PO Box 424
   Trenton, New Jersey 08625-0424
   Attention: Discharge Confirmation Report

   The report will include:

   1. The name, address and telephone number of the individual that reported the discharge pursuant to NJAC 7:1E-5.3;

   2. The name, address and telephone number of the individual submitting the confirmation report if different from the individual identified in 1 above, and the relationship between said persons, such as employer-employee or contractor-client;

   3. The name, address and telephone number of each owner and operator of the facility at which the discharge occurred, or the vessel or vehicle from which the discharge occurred;

   4. The source of the discharge, if known;

   5. The location of the discharge, as follows:

i. For a discharge from sites located on land, the name of the site, the street address, the tax lot and block, the municipality, the county, and a site map identifying the point at which the discharge occurred and the surrounding area;

ii. For discharges on, under or into water, the name of the water body, and a map identifying the source of the discharge; and

iii. For all discharges that affect areas not under the control of the owner or operator, a map of the area affected by the discharge.

6. A list of the common name and Chemical Abstract Service number of each of the hazardous substances discharged;

7. A list of the quantities of each hazardous substance discharged, including best estimates if the quantities are unknown;

8. The date and time at which the discharge began, the date and time at which the discharge was discovered, the date and time at which the discharge ended, and the date and time at which the NJDEP was notified pursuant to NJAC 7:1E-5.3;

9. A description of the measures taken to contain, cleanup and remove the discharge, and a summary of costs incurred;

10. Corrective or preventative measures taken or proposed to minimize the possibility of recurrence;

11. The names, addresses and telephone numbers of all entities involved in containment, cleanup or removal of the discharge;

12. A description of samples taken at or around the site of the discharge, whether before, during or after any containment, cleanup or removal. The samples shall be taken and analyzed in accordance with NJAC 7:26E-2. Records of the results shall be kept onsite and made available for the NJDEP's review, at either the facility or the NJDEP's offices at the discretion of the NJDEP;

13. A certification stating that financial responsibility demonstrated pursuant to NJAC 7:1E-4.4 and submitted to the NJDEP pursuant to NJAC 7:1E-4.3(b)11 is in full force and effect;

14. Information supplementing any information previously provided to the NJDEP if additional relevant information is discovered, or if it is determined that the information previously provided was false, inaccurate or misleading;

15. Any other information concerning the discharge which the NJDEP may request; and

16. A fully executed certification pursuant to NJAC 7:1E-4.11.

5.1.2 Non-Reportable DPCC/SPCC Spills and Discharges

Unless the incident is reportable under NJPDES or CERCLA regulations, no further notification to State or Federal agencies need be performed. Cleanup will proceed as outlined in Section 4.3. A retraction letter for discharge notifications, later determined to be DPCC/SPCC non-reportable, will be sent to the NJDEP by Chemistry, Radwaste and Environmental Supervisors within 30 days of the event.

Oil sheens visible on the Delaware River which do not emanate from PSEG Nuclear LLC operations or facilities will be handled on an informational basis between the PSEG Nuclear LLC Fire Department and the United States Coast Guard of Philadelphia.

5.2 NOTIFICATION PROTOCOL

When making the required 15-minute notification to the NJDEP, or whenever a Federal, State, or local agency notification is made, a notation of the date, time, and person contacted must be entered by the OS using the Salem and/or Hope Creek Event Classification Guides (ECGs). Unsuccessful attempts to contact such agencies must also be noted in the report.

The notification directions of the ECG are available in the Control Rooms of Salem and Hope Creek Generating Stations.

5.3 FOLLOW-UP REPORTS

(NJAC 7:1E-5.8(d) and 5.8(f))

When additional or corrected information becomes available after the submission of a confirmation report, PSEG Nuclear LLC will submit a follow-up report to the NJDEP within 10 days of the availability of that information in accordance with the requirements of NJAC 7:1E-5.8. The Chemistry, Radwaste and Environmental Supervisors will ensure that appropriate follow-up reports are submitted to the NJDEP.

5.4 DETECTION SYSTEM MALFUNCTIONS

(NJAC 7:1E-5.5)

As discussed in Part II, Section 2.1, all storage tanks at PSEG Nuclear LLC are attended by facility personnel at all times during the filling procedure and are equipped with direct communication between tank gauger and pumping station, regardless of the availability of discharge detection systems. Therefore, any malfunction of detection systems, which would not materially affect the potential for discharges, is not required for notification of the NJDEP.

SECTION 6: ACTIONS AFTER DISCHARGES

6.1 RECOVERED MATERIAL

(NJAC 7:1E-4.3(b)7, 4.3(b)8, and 4.3(b)9; 40 CFR 112.7(a)(3)(v); 40 CFR 265.56(g); 40 CFR 112, Appendix F, Section 1.7.2)

After a spill/discharge incident, Maintenance Services will arrange for the treatment, storage, and disposal of recovered wastes, contaminated soil or surface water, and any other material resulting from a spill or discharge at the facility. All recovered and contaminated materials will be managed in accordance with the provisions of applicable regulations. All contaminated soils, stone, etc. associated with spills or discharges that occur onto land will be removed and placed in drums or larger containers, as appropriate. Oily hazardous substances discharged to waters of the State will be recovered using suitable sorbent booms, vacuum trucks, skimmers, or other applicable equipment, as appropriate and in accordance with Part IV: Environmentally Sensitive Areas Protection Plan. Chemical materials may be neutralized or managed as necessary to minimize environmental impact. A list of neutralizing agents is available in Table III-1. Contaminated cleanup material will be accumulated along with spill material and packaged for removal to an authorized offsite disposal facility. The staff of Chemistry, Radwaste and Environmental and Maintenance Services will coordinate activities associated with selecting offsite disposal and/or recycling of recovered materials.

Non-radioactive drummed waste (liquid or solid) and bulk liquids may be shipped by:

Clean Harbors Environmental Services, Inc.
3 Sutton Place
Edison, NJ 08817

to an authorized disposal facility. For larger spills involving greater quantities of solid cleanup material, larger containers (e.g., roll-offs) may be employed to transport the waste to an appropriate authorized disposal facility.

Spills of acid and caustic will be neutralized and contained, where practicable. If spills occur within buildings or secondary containment structures, the Operations Superintendent (OS) will coordinate with Maintenance Services who, with the support of the Station Chemistry Department, will, in turn, manage the disposition of the chemical for recovery or disposal. The spilled material may be removed for offsite disposal or directed via collection systems to the appropriate onsite treatment system as follows:

Station	Treatment System	Materials
Salem	Industrial Wastewater Treatment System (a.k.a Non-Radioactive Liquid Waste Disposal System, NRLWDS)	Acids, caustics, sodium hypochlorite, and hydrogen peroxide
	Oil/Water Separator System	Wastewater
Hope Creek	Low Volume and Oily Waste System, LVOW	Oily wastes and some liquid wastes
	Cooling Tower	Sodium hypochlorite and ammonium bisulfite

Spills involving petroleum products within buildings are either containerized or collected. Small volume or low concentration oily water, with the approval of the Chemistry, Radwaste and Environmental Supervisors, may be drained to the appropriate NJPDES permitted oil/water separator (at Salem) or to the Low Volume and Oily Waste System (at Hope Creek). Oily waste is periodically removed from the oil/water separators and from the "used oil" storage tank (at Hope Creek) and disposed of at an authorized hazardous waste treatment system disposal (TSD) facility.

6.2 DISCHARGE RESPONSE EQUIPMENT AND SYSTEMS

(40 CFR 265.33 and 265.56(h)(2); 40 CFR 112, Appendix F, Sections 1.3(A)(4), 1.7.2, and 1.8.1.2)

The Fire Department, through the appropriate responsible department, will ensure that their discharge response equipment and systems are cleaned, recharged, reactivated, and fit for their intended purposes and inspected prior to the resumption of facility operations.

SECTION 7: OIL SPILL MITIGATION PROCEDURES

7.1 OIL DISCHARGE VOLUMES

7.1.1 Small Discharge

(40 CFR 112, Appendix F, Section 1.5.1)

A small discharge is defined under 40 CFR 112.20 as any spill volume less than or equal to 2,100 gallons (50 barrels), provided that this amount is less than the worst case discharge (WCD) amount. Under Navigation and Vessel Inspection Circular (NVIC) 7-92, Section 5, this is defined as the average most probable discharge (AMPD). At Salem and Hope Creek Generating Stations, a small discharge is 2,100 gallons of No. 2-D Fuel Oil (Group I, Non-Persistent Oil), since the volume of the WCD exceeds 2,100 gallons (See Section 7.1.3). A facility response personnel list and an equipment list are provided under the Telephone Numbers Tab and Discharge Response Equipment Tab, respectively.

7.1.2 Medium Discharge

(40 CFR 112, Appendix F, Section 1.5.1)

A medium discharge is defined as any spill volume greater than 2,100 gallons and less than or equal to 36,000 gallons or 10 percent of the capacity of the largest tank at the facility, whichever is less, provided that this amount is less than the WCD amount.

At Salem and Hope Creek Generating Stations, a medium discharge is greater than 2,100 gallons and less than or equal to 36,000 gallons, since 10 percent of the largest tank exceeds 36,000 gallons.

7.1.3 Worst Case Discharge (WCD)

(40 CFR 112, Appendix F, Sections 1.3(B) and 1.5.2)

Since this facility is a Non-Transportation-Related Facility (NTRF), the worst case discharge calculations (Volume 2, Appendix M) are based on the criteria defined in Appendix D to 40 CFR 112 (August 11, 2004). Response resources have been determined to respond to the calculated WCD at this facility for the non-persistent oil of concern. The OSRO, whom will be called upon to assist PSEG Nuclear LLC in the event of a WCD of oil, and its capabilities are provided under the Telephone Numbers Tab and Discharge Response Equipment Tab, respectively.

Based on the USEPA definition, WCD calculations were performed for the NTRF consisting of Salem and Hope Creek Main Fuel Oil Storage Tanks, with a storage capacity of 840,000 gallons and 1,000,000 gallons, respectively, of No. 2-D fuel oil (Group I, Non-Persistent Oil). For more detailed information about these tanks, refer to Part II, Section 2: Technical Information.

In calculating the NTRF WCD for this facility, PSEG Nuclear LLC followed the procedures in Appendix D to 40 CFR Part 112 revised as of August 11, 2004.

Based on these calculations, the WCD at the facility is the release of 23,810 barrels of No. 2-D fuel oil from Hope Creek Main Fuel Oil Storage Tank (Location No. H8). The resulting planning volumes are shown below.

Planning Volume Recovery[1]				
	Shoreline Cleanup Volume (bbls)	**On-water Oil Recovery Capacity (bbls/day)**		
		Tier 1	**Tier 2**	**Tier 3**
No. 2-D Fuel Oil (Group I)	2,381	714	1,191	1,905

1 Refer to Volume 2, Appendix M for calculations of the WCD and the planning volumes.

7.2 DISCHARGE PROCEDURE/SCENARIOS

(40 CFR 112.7(b); 40 CFR 112, Appendix F, Sections 1.4.3, 1.5.1, 1.5.2 and 1.7.1)

PSEG Nuclear LLC has procedures addressing facility personnel actions in the event of a spill, discharge, or potential discharge involving the following equipment and scenarios:

7.2.1 Failure of Manifold and Mechanical Loading Arm, Other Transfer Equipment or Hose, as appropriate

Existing procedures require that flexible hoselines used to transfer petroleum and their couplings be visually inspected prior to each use. Visibly damaged, deteriorated, or discarded hoses are immediately taken out of service and removed from the work area.

7.2.2 Tank Overfill

Visual inspections of the tanks and their containment systems to identify any leaks are performed daily by operating personnel during their routine rounds. To further reduce the risk of an unnoticed leak escaping to containment, fuel levels are recorded daily and upon receipt of a fuel oil delivery. Variations in the level that are unaccounted for are reported to management for initiation of a follow-up investigation.

Equipment, tanks, and containers located inside plant buildings are protected by the containment afforded by the buildings and by diversion to a waste treatment system. All storage tanks and equipment located outdoors have appropriate containment systems as described in Part II, Section 2. Contents escaping from any of these tanks would be identified during daily inspections. Since the containment systems are impermeable, leaks and spills into the containment are prevented from reaching the lands or waters of the State. In general, leaks can be prevented from reaching the lands or waters of the State by employing good housekeeping and maintenance procedures as described in Part II, Section 2.10.

7.2.3 Tank Failure

In 2007 PSEG Nuclear LLC tested and inspected each aboveground storage tank at the facility that had a capacity greater than 2,000 gallons (See Part II, Tables II-3A and II-3B). These test results are available in the Regulatory Affairs Department. Last test dates can be found in Part II, Table II-3C. Future tank testing (See Part II, Table II-3D) will be done at intervals based on tank material, substances stored, soil conditions, corrosion allowance remaining, corrosion rate, leak history of the tank, degree of risk, and the results of internal visual inspections. Integrity testing, including internal visual inspections, will be performed every five (5) years in compliance with acceptable industry standards, which may include elements of API 574, API 653, ASME Section V, ASME Section VIII, and ASME Section X.

7.2.4 Piping Rupture

Daily operator plant tours identify deteriorating physical equipment conditions prior to pipeline failures. Any leak, drip or degraded condition prompts corrective action identification. If a pipe were to rupture, operation would be stopped and corrective action would be taken to mitigate the discharge.

7.2.5 Piping Leak, Both Under Pressure and Not Under Pressure

Hose connections are checked when the pump on the tank truck is started to ensure that there is no leakage. Housekeeping checklists and procedural controls provide for regular inspection of pipelines. During these inspections, operators examine the general condition of pipelines, including flange joints, expansion joints, valve gland packing and bodies, catch pans, pipeline supports, valve position locking (if applicable), and metal surface conditions. Any piping leaks would further be identified by telltale indications in plant sumps and treatment systems.

7.2.6 Explosion and/or Fire

Response to fires and explosions that cause or could potentially cause a discharge of oil are in accordance with the Salem and Hope Creek Event Classification Guide (ECG) which classifies and prioritizes resources and response actions.

7.2.7 Equipment Failure (e.g., pumping system failure, relief valve failure, etc.)

Routine housekeeping and equipment inspections are performed, which incidentally detect leaks, spills and equipment failures. This includes surveillance inspection and testing of level devices, testing of pumps to assure proper operation, and a check of the age and condition of absorbents. Records of inspections are maintained on hard copy or electronically by personnel responsible for equipment maintenance, testing and/or operations as appropriate.

SOPs and computer-based maintenance planning are used to ensure that all critical equipment and systems are tested/inspected as necessary. Inspections occurring less frequently (e.g., annual secondary containment structural) are initiated by the SAP Corrective Action Program (CAP). Upon completion, the deficiencies are noted and repair work is scheduled through CAP.

7.3 MITIGATION OF A SMALL DISCHARGE

(40 CFR 112, Appendix F, Sections 1.3(A)(5), 1.4.3, 1.5.1 and 1.7.1)

The following details the equipment and responsibilities of facility personnel to mitigate a small discharge.

7.3.1 Discharge of No. 2-D Fuel Oil to the Ground

Upon discovery of a small No. 2-D fuel oil discharge to the ground at the facility, the OS is immediately notified. The OS makes the immediately required agency notifications in accordance with the ECG and activates the DRC (or QI) as described in Section 2 and assembles the facility Spill Management Team (SMT). The SMT (onsite Fire Department) will then stop the discharge and begin initial cleanup of the area utilizing spill control equipment available onsite.

If required and upon arrival of an OSRO, the SMT will coordinate all spill/discharge response activities. The average time for an OSRO arrival will be one to one-and-a-half hours from the time of initial notification. Once onsite, the OSRO will mitigate the spill using their equipment. Clean Harbors Environmental Services, Inc. (CHI) is the designated OSRO for land-based discharges at this facility (See Discharge Response Equipment Tab). ENTRIX, Inc. is the designated NRDA coordinator for land and water-based discharges at this facility. BECA Environmental Consultants, Inc. is the designated spill management support vendor for spill plan maintenance and consultation. The Paratus Group is the designated trainer for spill response and drills, as well as spill management support for large discharges of oil.

7.3.2 Discharge of No. 2-D Fuel Oil to Surface Water

Upon discovery of a small No. 2-D fuel oil discharge to the surface water at the facility, the OS is immediately notified. The OS activates the DRC and makes the immediately required notifications to the appropriate agencies as described in Section 4. The SMT (onsite Fire Department) will then stop or mitigate the discharge and await further assistance from the OSROs as needed.

The average time for an OSRO to arrive will be one to one-and-a-half hours from the time of initial notification. The Delaware Bay and River Cooperative, Inc. (DBRC) is the facility's designated OSRO for discharges involving surface waters. For a list of DBRC owned spill equipment available for mobilization, refer to the DBRC Oil Spill Response Plan (Volume 2, Appendix I).

7.4 SENSITIVE AREAS

PSEG Nuclear LLC maintains membership as part of the DBRC. The DBRC has prepared a series of maps designating EI/ESAs. These maps are included as part of Appendix C of the Oil Spill Response Plan Appendices and have been submitted to the USEPA and USCG by the DBRC under separate cover.

The above referenced document also contains deployment plans for each sensitive area described above.

The facility maintains storage for only OPA Group I non-persistent oils (No. 2-D fuel oil) at the site. Therefore, the planning area for deployment operations for non-persistent oil discharges is limited to five (5) miles north and south of the site along the Delaware River in accordance with NVIC 7-92. The following sensitive area maps and deployment schemes should be consulted for the facility:

<u>New Jersey</u>

- NJ 56.77 Mill Creek
- NJ 56.60 Unnamed Ditch North of Straight Creek
- NJ 55.97 Straight Ditch
- NJ 55.39 Black Ditch
- NJ 54.45 Alloway Creek and Lower Alloway Creek
- NJ 48.50/49.00 Three Guts North of Hope Creek
- NJ 48.47 Hope Creek
- NJ 47.45/NJ 47.60 Fishing Creek/Shore Ditch
- NJ 47.30 Cat Gut
- NJ 44.94 Mad Horse Creek
- NJ 44.15 Lower Deep Creek
- NJ 43.68 Cherry Tree Creek

Delaware

- DE 56.49 St. Georges Creek
- DE 56.20 St. Georges Creek – South
- DE 55.60 Carey Farm Tidal Gate
- DE 55.20 Canadas Beach
- DE 54.60 Port Penn – South
- DE 53.30 Augustine Creek
- DE 52.60 Silver Run
- DE 51.90 Upper Break
- DE 51.45 Lower Break
- DE 50.88 Appoquinimink
- DE 50.49 Blackbird Creek
- DE 49.79 Rays Ditch
- DE 48.85 Peach House Ditch
- DE 47.83 Middle Drain
- DE 46.10 Cedar Swamp/Collins Beach
- DE 44.56 Smyrna River
- DE 43.80 Bakeoven Point

The Discharge Response Equipment Tab and the Telephone Numbers Tab identify equipment and personnel required to respond to a spill.

SECTION 8: OIL HAZARD EVALUATION

8.1 HAZARD IDENTIFICATION

(40 CFR 112, Appendix F, Section 1.4.1)

A list of typical containers and equipment where petroleum is stored and utilized is presented in Part II, Tables II-1A, II-1B, and II-1C, for Salem Generating Station, Hope Creek Generating Station, and facilities common to both Stations. The information regarding container and equipment identification number, container type and capacity, substance stored, secondary containment type and capacity is also presented in those tables.

Tables II-2A and II-2B of Part II, present a list of areas where petroleum is unloaded from tank trucks at Salem and Hope Creek Generating Stations. The information regarding product type, product delivery quantity, secondary containment type and capacity is also described in those tables.

The information regarding Salem and Hope Creek tank testing matrix and schedule, including years in service, proximity to Delaware River, leaks in past five years, and last integrity test completion date, is presented in Tables II-3A, II-3B, II-3C, and II-3D of Part II.

For each location number identified in Tables series II-1 and II-2, grid coordinates corresponding to the Site Plan (Maps Tab) are provided to locate the storage tanks, process areas, containers/equipment, and tank truck unloading areas.

The information regarding housekeeping and maintenance programs, secondary containment/diversion systems, leak detection and monitoring systems at PSEG Nuclear LLC is described in detail in Part II, Sections 2.4, 2.9 and 2.10.

8.2 VULNERABILITY ANALYSIS

(40 CFR 112, Appendix F, Sections 1.2.3 and 1.4.2)

PSEG Nuclear LLC is a member of the Delaware Bay and River Cooperative (DBRC). The Economically Important and Environmentally Sensitive Areas (EI/ESAs) in the Study Area (i.e., 5 miles up- and downstream of the facility) are discussed in Section 7.4 and are also provided in Appendix C and D of the DBRC Oil Spill Response Plan submitted under separate cover to the USEPA and USCG. In addition, PSEG Nuclear LLC's delineation of ESAs and a plan for protecting these areas in the case of an offsite discharge are presented in Part IV: Environmentally Sensitive Areas Protection Plan. There are no wellhead protection areas delineated by the NJDEP within 1,000 feet of the PSEG Nuclear LLC boundary.

The closest navigable waters to the facility is the Delaware River. The shortest distance to the Delaware River from the largest aboveground oil storage tank (Hope Creek Main Fuel Oil Storage Tank) is determined to be about 0.06 miles or 300 feet.

The nearest industrial cooling water intake is the Salem water intake which is located south of the Hope Creek Main Fuel Oil Storage Tank (HCMFOST) and west of the Salem Main Fuel Oil Storage Tank (SMFOST). The distance from the HCMFOST to the Salem water intake is determined to be about 0.74 miles or 3,900 feet; the distance from the SMFOST to the Salem water intake is determined to be about 0.085 miles or 450 feet. The DPRP Drainage and Land Use Map (Maps Tab), Salem and Hope Creek Generating Stations, is the base drawing used for the calculation of distances.

The areas in which petroleum substances are routinely stored, processed, or transferred have been constructed to prevent the largest probable spill within an area of the facility from flowing, draining, or leaching onto the lands or navigable waters. Secondary containment and diversion systems at Salem and Hope Creek Generating Stations are capable of blocking all probable routes by which oil spills could flow to State waters; the structures and systems are of sufficient capacity, made of or lined with impermeable material and located in areas not subject to flooding. The details of containment and diversionary systems at Salem and Hope Creek Generating Stations are described in Part II, Section 2.4.

8.3 ANALYSIS OF THE POTENTIAL FOR AN OIL SPILL

(40 CFR 112.7(b); 40 CFR 112, Appendix F, Section 1.4.3)

The PSEG Nuclear LLC site consists of approximately 30 feet of hydraulic fill overlying a thin layer of river bed sand and gravel, which is on top of the Kirkwood silts and clays with inter-bedded layers of sand. The site is generally flat and is graded to direct flow toward the Delaware River. The site drainage system consists of underground piping, catch basins, and drainage ditches that intercept and convey the runoff to the River.

The maximum expected groundwater level at the site was estimated to be four feet below ground surface. Movement of groundwater at the site is quite slow as a result of the comparatively low coefficients of permeability and the low hydraulic gradients. Fluid infiltration in the site area is slow since the soil strata are relatively impermeable.

Based on the site characteristics described herein, discharges to the Delaware River from the PSEG Nuclear LLC boundary are most likely developed through overland flow and/or stormwater drainage systems.

A potential spill or discharge at the PSEG Nuclear LLC site will likely involve the following equipment and scenarios:

- Failure of Manifold and Mechanical Loading Arm, Other Transfer Equipment or Hose;
- Tank Overfill;
- Tank Failure;
- Piping Rupture;
- Piping Leak, Both Under Pressure and Not Under Pressure;
- Explosion and/or Fire; and
- Equipment Failure (e.g., pumping system failure, relief valve failure, etc.).

The details of each scenario are described in Section 7.2. In addition, PSEG Nuclear LLC has procedures addressing facility personnel actions in the event of a spill, discharge, or potential discharge, as discussed in Part II, Section 2.13.

SECTION 9: OIL DISCHARGE SCENARIOS

9.1 SMALL AND MEDIUM DISCHARGES

(40 CFR 112, Appendix F, Sections 1.4.3, 1.5.1, and 1.7.1)

At Salem and Hope Creek Generating Stations, the required calculation for a small discharge is 2,100 gallons of No. 2-D Fuel Oil as described in Section 7.1.1; a medium discharge is greater than 2,100 gallons and less than or equal to 36,000 gallons as described in Section 7.1.2.

The procedures addressing facility personnel actions in the event of a spill, discharge, or potential discharge involving various equipment and scenarios are described in Section 7.2. The mitigation mechanism of a small discharge of No. 2-D Fuel Oil to the ground surface and/or to the surface water is described in Section 7.3.

The housekeeping and maintenance procedures used to contain and cleanup small spills, which may occur during day-to-day operations, are described in Part II, Section 2.10. The secondary containment and diversion systems designed to prevent the largest probable spill within an area of the facility from flowing, draining or leaching onto the lands or navigable waters are described in Part II, Section 2.4.

9.2 WORST CASE DISCHARGE

(40 CFR 112, Appendix F, Sections 1.3(B), 1.4.3, 1.5.2, and 1.7.1)

The Worst Case Discharge (WCD) at PSEG Nuclear LLC is a discharge of 1,000,000 gallons of No. 2-D fuel oil from the main fuel oil storage tank at Hope Creek Generating Station, as described in Section 7.1.3. There are no aboveground oil storage tanks manifolded together.

The WCD amount and its planning volume for the WCD response are calculated in accordance with Appendix D to 40 CFR Part 112. The resulting planning volumes are presented in Section 7.1.3 and Volume 2, Appendix M.

As described in Section 2, the Qualified Station Personnel, Spill Management Team and the Oil Spill Removal Organization (OSRO) are capable of responding to the WCD to the maximum extent practicable. The discharge response personnel and equipment lists, including OSRO's resources, are provided under the Telephone Numbers Tab and Discharge Response Equipment Tab, respectively.

SECTION 10: FIGURES

This Section contains the following figures associated with Part III of this DPRP:

FIGURE III-1

SPILL/DISCHARGE RESPONSE ORGANIZATION CHART

Operations Superintendent (OS)

- Consult ECG
- Notify Fire Department
- Notify NJDEP
- Inform Chemical, Radwaste and Environmental Department
- Make Required Notifications
- Prepare and Submit Internal Reports

Discharge Response Coordinator (DRC)

(Also known as the Qualified Individual (QI) for USEPA discharge planning purposes)

- Nuclear Fire Protection Supervisors

DRC Brings in Contractor or DBRC

Fire Department

- Provide First Response
- Characterize Spill / Discharge
- Medical Emergencies
- Containment and Protection
- Clean and Recharge Response Equipment
- Notify Maintenance Services
- Bring in Discharge Response Contractor or DBRC
- LACT Fire Department
- Notify National Response Center

Maintenance

- Cleanup and Containerize
- Bring in Cleanup Contractors
- Cleanup and Remove Spill Refuse and Contaminated Materials
- Salvage Equipment
- Disposal

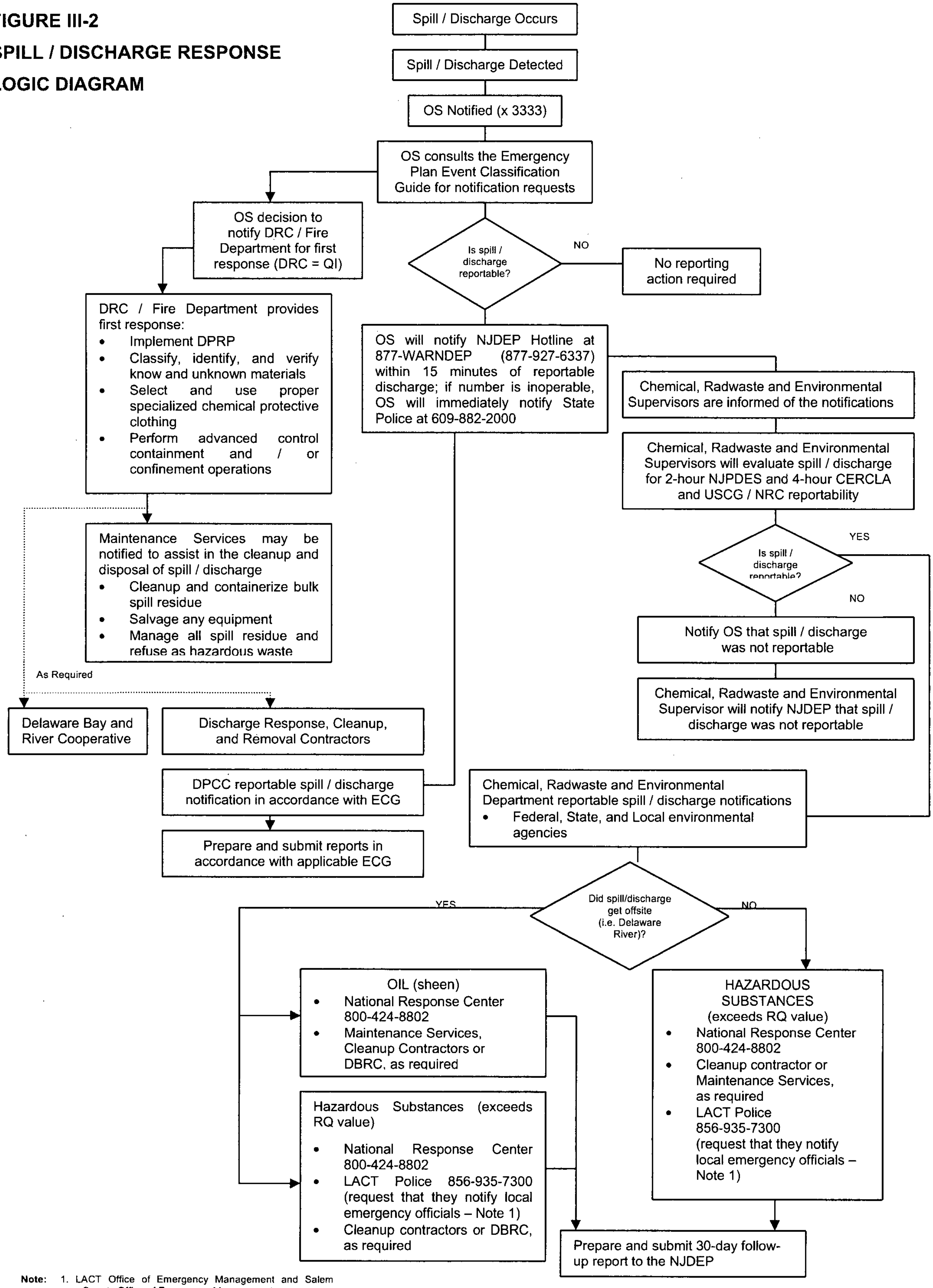
Chemical, Radwaste and Environmental Department

- Evaluate for NJPDES / NRC / CERCLA Reportability
- Notify OS if Spill / Discharge is not reportable
- 30-Day Follow-up NJDEP Report
- Approve Remediation Plans and Offsite Disposal Sites
- National Response Center Contact
- 5-Day NJPDES Follow-up Report to NJDEP
- Notify USCG
- Perform Natural Resource Damage Assessment

FIGURE III-2

SPILL / DISCHARGE RESPONSE

LOGIC DIAGRAM



Note: 1. LACT Office of Emergency Management and Salem County Office of Emergency Management

FIGURE III-3

SPILL / DISCHARGE AGENCY NOTIFICATIOINS

NJ SPILL ACT

Discharge of oil or hazardous substances (see definition in NJAC 7:1E-1.6) which will or may result in damage to lands, water, or natural resources need to be reported within 15 minutes of occurrence or detection. Notifications are made on a case-by-case basis.

CWA

The discharge of a reportable quantity of oil (including waste oil) and/or hazardous substance (see 40 CFR 117) into or upon navigable waters, adjoining shorelines, into or upon the contiguous zone or beyond the contiguous zone (i.e., wetlands, mud flats, streams) would require notification to the following agencies. *Note the 40 CFR 110 considers an "oil sheen" a reportable discharge.

CERCLA

The release of a reportable quantity of a hazardous substance (see 40 CFR 302) under CERCLA involves spilling, leaking, pumping, emitting, emptying, discharging, injecting, escaping, loading, dumping, or disposing "into the environment." Releases which are not wholly contained within buildings or structures (including releases to the atmosphere) are subject to notification consideration where the RQ would be the determining factor for reporting the release. Releases of mixtures and solutions are subject to notification only where a component hazardous substance of the mixture or solution is released in a quantity greater than its RQ. *Note that 40 CFR 302 includes RQs for listed and unlisted hazardous waste releases. Under CERCLA, a reportable release would require notification to the following agencies:

RCRA

If the Discharge Response Coordinator determines that the facility has a discharge, fire, or explosion involving a hazardous waste which would threaten human health or the environment, outside the facility, the following agencies should be notified:

SARA TITLE III

Under Title III of SARA, a release of an RQ CERCLA hazardous substance or an extremely hazardous substance (see 40 CFR 355) would necessitate the notification of State and Local Emergency Response Centers or Coordinators if the release migrates beyond the facility boundaries and could result in the exposure to persons outside the boundaries of the facility. The agencies to be notified include the following:

National Response Center
800-424-8802

U.S. Coast Guard
215-271-4800

NJDEP Hotline
1-877-WARNDEP
(1-877-927-6337)

LACT Police Department
856-935-7300

LACT Fire Department
856-935-4505

30-Day Report

FIGURE III-4: SPILL RESPONSE NOTIFICATION FORM

It is not necessary to wait for all information before contacting the National Response Center

Reporter's Last Name: First: M.I.:
Position:
Phone Numbers: Day ( ) - Evening ( ) -
Company:
Organization Type:
Address:
City: State: Zip:

Were Materials Discharged? (Y/N) Confidential? (Y/N)
Meeting Federal Obligations to Report? (Y/N) Date Called:
Calling for Responsible Party? (Y/N) Time Called:

Incident Description

Source and/or Cause of Incident:
Date of Incident: Time of Incident: AM/PM
Incident Address/Location:
Nearest City: State: County: Zip:
Distance from City: Units of Measure: Direction from City:
Section: Township: Range: Borough:
Container Type: Tank Oil Storage Capacity: Units of Measure:
Facility Oil Storage Capacity: Units of Measure:
Facility Latitude: Degrees Minutes Seconds
Facility Longitude: Degrees Minutes Seconds

Material

CHRIS Code	Discharged Quantity	Unit of Measure	Material Discharged in Water	Quantity	Unit of Measure

Response Action

Actions Taken to Correct, Control or Mitigate Incident:

Impact

Number of Injuries: Number of Deaths:
Were There Evacuations? (Y/N) Number Evacuated:
Was There Any Damage? (Y/N) Damage in Dollars (Approximate):
Medium Affected: Description:
More Information about Medium:

Additional Information

Any information about the Incident not recorded elsewhere in the report:

Caller Notifications

1. National Response Center (USCG)? (Y/N) 1-800-424-8802
2. NJDEP? (Y/N) 1-877-WARNDEP or 1-877-927-6337
3. NJ State Police? (Y/N) (609) 882-2000
4. EPA Region II (NJ)? (Y/N) 1-800-424-8802 or (212) 637-4391
5. EPA Region III (PA)? (Y/N) 1-800-424-8802 or (215) 814-9016
6. LACT Police Dept./LACT OEM? (Y/N) (856) 935-7300

SECTION 11: TABLES

This Section contains the following table associated with Part III of this DPRP:

TABLE III-1 CHEMICAL SPILLS NEUTRALIZING AGENTS

TABLE III-1

CHEMICAL SPILLS NEUTRALIZING AGENTS

POTENTIAL	CHEMICAL NEUTRALIZERS
Sulfuric Acid	Carbonates / Bicarbonates
Sodium Hydroxide	Spill-X, Weak Acid Solution
Sodium Hypochlorite	Bisulfite compounds
Ammonium Hydroxide	Carbonates
Hydrazine	Hydrogen Peroxide
Hydrogen Peroxide	Water

PART IV

ENVIRONMENTALLY SENSITIVE AREAS PROTECTION PLAN

PART IV: ENVIRONMENTALLY SENSITIVE AREAS PROTECTION PLAN

(NJAC 7:1E-4.3(b)8i)

SECTION 1: INTRODUCTION

PSEG Nuclear LLC (geographically named Artificial Island) is located in the southern region of the Delaware River Valley, which extends from Trenton to Cape May Point, New Jersey on the eastern side, and from Morrisville, Pennsylvania, to Lewes, Delaware on the western side. This region is characterized by extensive tidal marshlands and low-lying meadowlands. Tidal flows dominate over freshwater discharge in this area.

The Delaware River Estuary System consists of the Delaware Bay, Delaware Estuary, and Delaware River. PSEG Nuclear LLC is situated in the Delaware Estuary, approximately 50 river miles upstream of the mouth of the Delaware Bay. The Delaware River Estuary System is one of the most environmentally sensitive areas in New Jersey. In terms of human use, this region has important economic and aesthetic values (i.e., commercial fisheries and recreation); it also provides critical estuarine habitats for a diversity of terrestrial and aquatic wildlife. In the vicinity of PSEG Nuclear LLC, there are numerous wildlife management areas, habitat restoration sites (as described below), and developed areas shaped by both rural (i.e., cropland, farms) and low- to moderate-density residential and commercial land uses. This region's aquatic and terrestrial habitats are environmentally sensitive areas (NJAC 7:1E-1.8(a)7), and provide wildlife with critical habitat used during breeding, wintering and spring and fall migration.

In 1994, PSEG Nuclear LLC initiated its Estuary Enhancement Program (EEP) that encompassed approximately 20,000 acres within the Delaware Estuary. As part of the EEP, PSEG Nuclear LLC is restoring wetlands in previously diked salt hay farms and *Phragmites*-dominated wetland restoration sites within the Delaware Estuary. Three of the sites, including the Alloway Creek Watershed Wetland Restoration Site in Salem County, and The Rocks and Cedar Swamp Wetland Restoration Sites in Delaware, are within the study area described herein. In addition, the Bayside Tract, a 4,400-acre parcel, has been included as part of the protection area. The Bayside Tract is a combination of tidal and freshwater wetlands areas and upland areas that are used primarily for agriculture. These lands are important to both the

Delaware Estuary and PSEG Nuclear LLC as environmentally sensitive areas that are being restored and protected.

The following Environmentally Sensitive Areas Protection Plan (ESAPP or Plan) discusses PSEG Nuclear LLC's delineation of environmentally sensitive areas (ESAs) and a plan for protecting these areas in the case of an offsite discharge. This Plan meets the requirements of NJAC 7:1E-4.3(b)8i-iii. This Plan also identifies ESAs as defined in NJAC 7:1E-1.8 and outlines a plan of action for protecting those features in the event of a discharge from the facility. It is the intention of PSEG Nuclear LLC to respond to offsite discharges in a way that best prevents the spread of and mitigates the impact of a discharge. These discharges may impact water or land, and have the potential to impact ESAs near the facility. PSEG Nuclear LLC has grouped ESAs into delineated watershed areas that contain one or more ESAs. In many cases, a group of ESAs can be protected and managed by concentrating on protecting an entire sensitive watershed area.

This Plan discusses how the areas surrounding PSEG Nuclear LLC can be protected from potential offsite discharges of hazardous substances from the facility. The Plan follows the methodology of the Port of Philadelphia Coast Guard Subregional Oil and Hazardous Substance Pollution Contingency Plan (SCP). The SCP outlines the USCG's methods for response, cleanup, and coordination with authorities. The SCP was developed by the USCG based on experiences in controlling and cleaning discharges in the Delaware River and Bay area. The response actions outlined in the SCP are designed to stop or contain the source, to protect sensitive areas, to recover the pollutant, and to clean any affected areas.

This Plan is designed to identify and recommend protective actions for ESAs that may be affected by a discharge from PSEG Nuclear LLC. The choices of specific protective measures, prioritization, and staging for discharge response will be implemented on a case-by-case basis. Any decisions regarding priorities and implementation of the appropriate measures will depend on many environmental factors that must be determined at the time of a discharge. The decision-making process is continuous and based on immediate data. The Plan does not try to deal with every discharge scenario. Rather it explains:

1. Areas that may require special protection (ESAs);

2. Hazardous substances at PSEG Nuclear LLC;

3. Types of discharges;

4. Climatological conditions likely to be encountered;

5. Areas from which effective spill response can be enacted; and

6. Suggested priorities for selecting protection and cleanup options.

PSEG Nuclear LLC's Spill/Discharge Response Plan (Refer to Part III, Section 4, Discharge Response Procedures) explains measures for handling spills and discharges at the facility, including onsite discharge response procedures for different types of spills and discharges. The locations of possible offsite discharge points and their associated spill events are listed in Table IV-1.

1.1 GUIDANCE FOR DISCHARGE RESPONDERS

This Section provides references of key information discussed for the convenience of responders who may use this Section as a guide for ESA protection, cleanup and removal after a discharge is detected.

Potential Offsite Discharge Point from PSEG Nuclear LLC
Refer to Table IV-1

Potential Seasonal Presence of Bird Species at PSEG Nuclear LLC
Refer to Table IV-2

Presence of ESAs by Watershed
Refer to Table IV-3

Seasonal Sensitivity of ESA in the PSEG Nuclear LLC Study Area
Refer to Table IV-4

<u>Physical Properties for Chemicals Present at PSEG Nuclear LLC</u>

Refer to Table IV-5

<u>Cleanup Options and Their General Applications</u>

Refer to Table IV-6

<u>Protection and Cleanup Methods</u>

Refer to Appendix L Protection and Cleanup Methods

<u>Protection Methods for ESAs</u>

Refer to Table IV-7

<u>Protection Methods for Designated Areas</u>

Refer to Table IV-8

<u>Surface Water Intakes in the PSEG Nuclear LLC Study Area</u>

Refer to Table IV-9

<u>ESA Concentration Areas</u>

Refer to Table IV-10

<u>Staging Areas for Protection and Cleanup</u>

Refer to Table IV-11

SECTION 2: IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE AREAS

2.1 STUDY AREA

(NJAC 7:1E- 4.2(b)9)

NJAC 7:1E-4.10(d)7iii defines the study area for delineation of ESAs as *"fifteen miles from the facility boundary, downgradient along the path a discharge would follow, including all floodprone areas around any surface water or wetland features..."*

For the purposes of this evaluation, all areas within a fifteen-mile radius of the facility and located within the 100-year floodplain were considered as part of the study area. The study area includes areas upstream of PSEG Nuclear LLC (within fifteen miles) as well as areas downstream. The ESAPP has incorporated information from the Delaware side of the River as well. Information for the Delaware portion of the study area was taken from a mapping effort by Research Planning Institute (RPI) (Columbia, South Carolina, 1985) entitled "Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Delaware, New Jersey, and Pennsylvania." The RPI document served as the basis for location of all Environmentally Sensitive Areas (ESAs) in Delaware and as the supplemental information for New Jersey. The initial mapping information provided by the RPI data and other source information as referenced in this document was also supplemented by information from the National Oceanic and Atmospheric Administration (NOAA, 1997). NOAA has produced a series of Environmental Sensitivity Index (ESI) Maps for coastal areas including the Delaware River and Delaware Bay. Initial information compiled to satisfy the requirements of NJAC 7:7E-1 et seq. was compared to the NOAA data for verification and consistency. Any ESAs located within the 100-year floodplain and within the fifteen-mile radius of PSEG Nuclear LLC are mapped and described as part of this Plan.

2.2 ENVIRONMENTALLY SENSITIVE AREAS

(NJAC 7:1E-4.3(b)8i)

Maps of ESAs within the facility's study area are included in Volume 3 of PSEG Nuclear LLC's DPRP. The basemap for ESA location was prepared by Aerial Data Reduction Associates, Inc. It contains street centerlines, major transmission lines and surface drainage/water body features and was compiled from 1991 vertical mapping photography of the designated project area at an approximate flight scale of 1"= 200'. Photography was obtained with a high resolution, low distortion precision cartographic camera with standard mapping specifications.

The required photo control surveys were obtained from licensed surveyors using Global Positioning Survey (GPS) techniques. All basic third order horizontal control necessary to support the stereo photogrammetric mapping was established. Horizontal datum utilized was the New Jersey State Plane Coordinate System (NAD 1983).

ESAs in New Jersey were initially delineated by Roy F. Weston, Inc., utilizing a variety of data sources identified in the paragraphs below.

2.2.1 Surface Waters/Stream Classifications

(NJAC 7:1E-1.8(a)1)

Surface waters, identified as large rivers, medium rivers, streams, creeks, ponds, lakes, reservoirs, canals, estuaries, and bays have been photogrammetrically compiled on the basemap in digital format. The surface water classifications have been established for the New Jersey water bodies based on the guidance included in the NJDEP ESA Mapping Guidance Document. The locations of all surface water bodies and stream classifications have been reviewed using U.S.G.S. 7.5' Quadrangle Maps.

The water bodies serve as the basis for protection measures and deployment options. Throughout this Plan, the information relating to protection measures and deployment will be referenced by water body name.

2.2.2 Sources of Water Supply

(NJAC 7:1E-1.8(a)2)

Public water intakes and water supply wells are sources of community and individual drinking water. Water intakes within the ESA study area were obtained from the NJDEP Water Intake Locations and digitized onto the basemap using state plane coordinates. Water supply well information from the NJDEP, Division of Water Resources, Bureau of Water Allocation, has been digitally added to the maps.

2.2.3 Bay Islands and Barrier Island Corridors

(NJAC 7:1E-1.8(a)3)

Bay Islands, as defined in NJAC 7:7E-3.21(a), *"...are islands or filled areas surrounded by tidal waters, wetlands, beaches or dunes, lying between the mainland and barrier island. Such islands may be connected to the mainland or barrier island by elevated or fill supported roads."*

Barrier Island Corridors as defined in NJAC 7:7E-3.20(a) are *"...the interior portions of oceanfront barrier islands, spits and peninsulas. The oceanfront barrier island corridor encompasses that portion of barrier islands, spits and peninsulas (narrow land areas surrounded by both bay and ocean waters and connected to the mainland) that lies upland of wetlands, beach and dune systems, filled water's edges, and existing lagoon edges."*

Within the study area of the PSEG Nuclear LLC facilities at Artificial Island, there are no Bay Islands or Barrier Island Corridors.

2.2.4 Beaches

(NJAC 7:1E-1.8(a)4)

Beaches, as defined in NJAC 7:7E-3.22(a) are *"...gently sloping areas of sand or other unconsolidated material, found on all tidal shorelines, including ocean, bay and river shorelines, that extend landward from the mean high water line to either: (1) a man-made feature generally parallel to the ocean, inlet, or bay waters such as retaining structure, seawall, bulkhead, road or boardwalk, except the sandy areas that extend* *fully under and landward of an elevated boardwalk are considered beach areas; or (2) the seaward or bayward foot of dunes, whichever is closest to the bay, inlet or ocean waters."*

Beaches were initially identified from the RPI mapping and verified through evaluation of NOAA ESI mapping. Beaches, riprap, and other shoreline areas are delineated on the maps as linear reaches of the Delaware River shoreline. Full descriptions of beaches and shoreline features found in the study area are contained in Section 4.2.2, Prioritization, of this Part.

2.2.5 Dunes

(NJAC 7:1E-1.8(a)5)

Dunes, as defined in NJAC 7:7E-3.16(a) are *"...wind or wave-deposited or man-made formation of sand (mound or ridge), that lies generally parallel to, and landward of, the beach and the foot of the most inland dune slope."*

Dune locations are shown on the enclosed maps.

2.2.6 Wetlands/Wetland Transition Areas

(NJAC 7:1E-1.8(a)6)

Wetlands, as defined by NJAC 7:7E-3.27(a), is *"...an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation."*

Wetland Transition Areas, as defined by NJAC 7:7E-3.28(a), are *"...areas of land adjacent to a wetland which minimizes adverse impacts on the wetlands or serves as an integral component of the wetlands ecosystem."* Wetland transition areas may vary in width depending upon the type of wetland and its relative importance in the ecological landscape.

The various types of wetlands are the host to a great variety of plant and animal life. Wetlands are also nesting and wintering areas for a significant number of birds. Therefore, wetlands are both economically and ecologically important resource areas. The wetland areas identified on the New Jersey ESA maps are based on the National Wetland Inventory (NWI) Maps as delineated by the U.S. Fish and Wildlife Service (USFWS).

The NWI maps are derived from maps originally plotted on U.S. Geological Survey Quadrangle Maps, at a scale of 1:24,000. The wetland maps were obtained from the USFWS digital files. With the exception of clear and obvious errors in transcription (i.e., an upland wetland shown in known open water), the NWI map data is presented exactly as received. The NWI map data represents an acceptable source of wetland boundary information in the absence of a comprehensive field investigation.

2.2.7 Critical Wildlife Habitat

(NJAC 7:1E-1.8(a)7)

Critical wildlife habitats, as defined by NJAC 7:7E-3.39(a), "*...are specific areas known to serve an essential role in maintaining wildlife, particularly in wintering, breeding, and migrating*".

While the designation of 'critical wildlife habitat' refers to all wildlife potentially using a specific area at some stage of its life history, several target groups are noted in NJAC 7:7E-3.39(a), including (1) colonial waterbird breeding and foraging areas; (2) stopover sites for migratory birds and other natural corridors for wildlife movement; and (3) 'ecotones', or transitional areas between two habitat types (i.e., open water – salt marsh interface used by wintering waterfowl, forested patches or structures within marshes used by nesting ospreys, and aquatic furbearers). Birds are particularly well represented in the NJAC 'critical wildlife habitat' designation, as many birds species would be directly impacted by perturbations to the environment, such as a hazardous waste spill into an area used by breeding, migrating or wintering birds. A list of bird species potentially occurring at PSEG Nuclear LLC in noted in Table IV-2. Aquatic furbearers, such as muskrats and beavers, would also be expected to inhabit these habitat types. Information on species using critical wildlife habitat has been obtained through the NJDEP's Division of Fish and Wildlife, DNREC's Division of Fish and Wildlife, and NOAA's ESI mapping.

Colonial waterbirds are species that breed in closely grouped nesting areas called 'colonies,' and derive the majority of their food from freshwater and estuarine systems. Colonial waterbirds known to occur in NJ and DE include wading birds (i.e., herons, egrets, and ibis), cormorants, gulls, terns and skimmers. Many species of colonial waterbirds, particularly wading birds, are undergoing dramatic declines in this vicinity and throughout the Atlantic Coast. One of the most important colonial waterbird nesting areas in the Delaware River Estuary, Pea Patch Island, is located approximately 12 miles north of the PSEG Nuclear LLC. Through PSEG Nuclear LLC's wetland restoration efforts at its Alloway Creek, Cedar Swamp and The Rocks, many colonial waterbirds have been observed using the sites. It would be expected that birds from Pea Patch Island would forage in freshwater and estuarine areas that could be impacted by a hazardous waste spill, and thus deserve special consideration in this plan.

Additionally, both PSEG Nuclear LLC's project site and adjacent wetland restoration sites provide critical estuarine and freshwater habitat and transitional areas used by both migrating shorebirds and wintering waterfowl. The Delaware River Estuary is a major stopover and wintering location along the Atlantic Coast Flyway, and a hazardous waste spill during periods of peak activity could have a substantial impact on bird populations. Critical wildlife habitat within a fifteen-mile radius of PSEG Nuclear LLC includes a large proportion of high-quality restoration sites in both New Jersey (i.e., Alloway Creek Watershed, Bayside Tract) and Delaware (i.e., The Rocks, Cedar Swamp). These sites provide substantial habitat for migrating and wintering shorebirds and waterfowl that would also be impacted by a spill. Upland habitats adjacent to these estuarine systems also provide important resources for other migratory marsh birds (i.e., rails, grebes, etc.), migratory songbirds (i.e., warblers, sparrows, etc.), and forested wetlands and scrub-shrub habitats adjacent to a hazardous material

The fifteen-mile downstream study area from PSEG Nuclear LLC's facilities at Artificial Island includes areas south of the Cohansey River, and therefore represents and important migratory area for shorebirds (i.e., plovers, sandpipers, and allies). Impacts to areas identified as migratory stopover sites would be seasonal, and would include early (April to June) and late (August to October) movements. The most abundant migratory shorebird species include semipalmated sandpiper, ruddy turnstone, red knot and sanderling, with fewer numbers of dunlin and dowitchers.

Early season shorebird migration coincides with spawning activity of horseshoe crabs *(Limulus polyphemus),* an important benthic macroinvertebrate in the Delaware River Estuary. Horseshoe crabs spawn in this region between April and July, with peak spawning activity occurring on full moon tides in May and June.

Horseshoe crabs deposit eggs that provide an essential food source necessary to shorebirds migrating through this region during the spring.

The most critical habitat for spawning horseshoe crabs are sandy beaches, although spawning may also occur on peat banks, salt marsh, and disturbed beaches. Horseshoe crab spawning areas reach their northern limits of Delaware Bay, located within the southern portion of PSEG Nuclear LLC study area. Spill response activity should be particularly sensitive to the lower reaches of the study area where both the migratory birds and horseshoe crabs may be present from April 15 to June 30, annually.

Lastly, transitional areas in the PSEG Nuclear LLC study area provide foraging habitat and cover for wildlife that use open water-salt marsh ecosystems throughout the year. Wildlife activities in these transitional areas are dependent on a diversity of habitat types that provide foraging resources and protection, including open water, creek systems, freshwater ponds, and marshes. For instance, ducks, geese and swans (i.e., waterfowl) use habitats within PSEG Nuclear LLC study area during breeding (i.e., Canada goose, American black duck, gadwall) and wintering (i.e., bufflehead, scaup, canvasback, and green-winged teal) periods. These sites could be profoundly impacted by hazardous material spills, and any spill response activities should be sensitive to coastal areas with substantial wetland systems.

2.2.8 Prime Fishing Areas

(NJAC 7:1E-1.8(a)8)

According to NJAC 7:7E-3.4(a), Prime Fishing Areas *"...include tidal water areas and water's edge areas which have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity. The area includes all coastal jetties and groins and public fishing piers or docks. Prime Fishing Areas also include all red line delineated features within the State of New Jersey's three mile territorial seas illustrated in: B.L. Freeman and L.A. Walford (1974) Angler's Guide to the United States Atlantic Coast Fish; Fishing Grounds and Fishing Facilities, Section III and IV or as indicated on New Jersey's Specific Sport and Commercial Fishing Ground Chart (page 14) contained in "New Jersey's Recreational and Commercial Ocean Fishing Grounds." Long and Figley (1984); recently developed artificial reefs off the New Jersey coast as identified by Figley (1989) "A Guide to Fishing and Diving New Jersey's Artificial Reefs", and The Fishing Grounds of Raritan, Sandy Hook and Delaware Bays as* *determined in Figley and McCloy (1988) "New Jersey's Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay and the Shellfish Resources of Raritan Bay and Sandy Hook Bay".*

Prime Fishing Areas within the fifteen-mile study area were defined based on the above-referenced information and are shown on the accompanying ESA mapping.

2.2.9 Finfish Migratory Pathways

(NJAC 7:1E-1.8(a)9)

Finfish migratory pathways are defined by NJAC 7:7E-3.5(a) as "*...waterways (rivers, streams, creeks, bays, inlets) which can be demonstrated to serve as passageways for diadromous fish to or from seasonal spawning areas, including juvenile anadromous fish which migrate in autumn...*".

Finfish migratory pathways are necessary for the propagation of the species using the migratory pathways. This ESA was mapped based on the New Jersey Anadromous Fish Inventory (1978) which textually identified present and historical run of anadromous clupeid spawning fish species, particularly alewife, american shad, and blueback herring. The streams within the ESA study area provide pathways for anadromous fish migration as well as potential spawning habitat and rearing areas and are identified on the digitized maps, indicating waterways within which such fish have been located. Icons mark the locations where these anadromous fish were observed showing the stream documented and the mouth of each stream providing a pathway. The entire Delaware River and many of its tributaries are identified as a pathway for all three species.

2.2.10 Submerged Vegetation Habitat

(NJAC 7:1E-1.8(a)10)

Submerged vegetation is defined in NJAC 7:7E-3.6(a) as "*...water areas supporting or documented as previously supporting rooted, submerged vascular plants such as widgeon grass (Ruppia maritima), sago pondweed (Potamogeton pectinatus), horned pondweed (Zannichellia palustris), and eelgrass (Zostera marina)...Other submerged vegetation species in lesser quantities include, but are not limited to, the* *following: water weed (Elodea nuttalli), Eriocaulon parkeri, Liaeopsis chinesis, Naja flexilis, Nuphar variegatum, Potamogeton crispus, Potamogeton epihydrus, Potamogeton perfoliatus, Potamogeton pusillus, Scirpus subterminalis, and Vallisneria Americana".*

These areas of seagrass and other submerged aquatic vegetation are important habitat areas for various species of fish. There is no submerged aquatic vegetation in the ESA study area based on the NJDEP Off-Shore Artificial Reef Data Sheet provided by the Bureau of Discharge Prevention.

2.2.11 Shellfish Harvesting Waters

(NJAC 7:1E-1.8(a)11)

NJAC 7:9B-1.4 defines shellfish waters as *"...waters classified as Approved, Seasonally Approved, Special Restricted, Seasonally Special Restricted or Condemned that support or possess the potential to support shellfish which are within the Coastal Area Facility Review Act (CAFRA) Zone as delineated in 1973,...plus the adjacent areas between Route 35...and the CAFRA Zone and the area from the CAFRA Zone on the south northwesterly along Route 35 to the northern shore of the Raritan River, then easterly along the northern shore of the Raritan River to the southeast point of Perth Amboy, then due east to the New Jersey jurisdictional limit, and seaward along the jurisdictional limit to the Atlantic Ocean."*

These areas are of economic importance in New Jersey. The shellfish harvest areas identified on the ESA maps are based on the NJDEP Bureaus of Shellfish Control and Marine Water Classification and Analysis, Shellfish Growing Water Classification Charts, and personal communications with NJDEP. Shellfish waters classifications are: Special Restricted Area, Seasonal Harvest Area, Prohibited Area, and Approved Area.

2.2.12 Forest Areas Including Prime Forest Land and Unique Forestland

(NJAC 7:1E-1.8(a)12)

According to NJDEP Bureau of Discharge Prevention's Environmentally Sensitive Areas Guidance Document, Forest Areas *"...include land capable of growing 85 cubic feet of timber per acre per year. Unique forestland is land not qualifying as prime on the basis of cubic foot growth but that is growing sustained yields of specific high value species."*

The majority of the study area's environmentally sensitive resources are associated with the wetland areas of the Delaware Bay and Estuary. Unique forestland in the Delaware Bay region is more likely to be located outside the 100-year flood plain limit and therefore is not an area of high concern for this geographical region.

2.2.13 Habitat for Federal and State Endangered or Threatened Plant and Animal Species *(NJAC 7:1E-1.8(a)13)*

NJAC 7:7E-3.38(a) defines endangered or threatened wildlife or vegetation species habitats as *"...areas known to be inhabitated on a seasonal or permanent basis by or to be critical at any stage in the life cycle of any wildlife or plant identified as 'endangered' or 'threatened' species on official Federal or State lists of endangered or threatened species, or under active consideration for State or Federal listing. The definition of endangered or threatened wildlife or plant species habitats also includes a sufficient buffer area to insure continued survival of the population of the species."*

These species and their habitat must be protected in the event of a discharge, since contamination could result in the loss of the entire population of a given species in New Jersey. The mapped ESA areas are based on the information received from the NJDEP Division of Parks and Forestry, Office of Natural Lands Management, New Jersey Natural Heritage Program. All records of endangered and threatened species in the Natural Heritage Program Data Base were searched through the following topographical quads: Bridgeton, Wilmington South, Penns Grove, Woodstown, Delaware City, Salem, Alloway, Taylors Bridge, Canton, Shiloh, Bombay Hook and Ben Davis Point. This information has subsequently been updated based upon data collected by PSEG Nuclear LLC's Estuary Enhancement Program and NOAA ESI data.

2.2.14 Federal and State Wilderness Areas, Including Areas Included within the Natural Areas System, as designated in NJAC 7:5A-1.13, or the State Register of Natural Areas Pursuant to the Natural Areas System Act, NJSA 13:1B-15.12a et seq. and 15.4 et seq., and NJAC 7:5A-1.4, and Preserved Land Held By the New Jersey Natural Lands Trust Pursuant to the New Jersey Natural Lands Trust Act, NJSA 13:1B-15.119 et seq.

(NJAC 7:1E-1.8(a)14)

According to NJDEP Bureau of Discharge Prevention's Environmentally Sensitive Areas Guidance Document, Wilderness Areas *"...are important for recreational activities such as hiking and camping. They are also host to a variety of plant and animal life."*

According to the Guidance Document, there are no lands in the PSEG Nuclear LLC study area that is defined as Natural Areas. Furthermore, there are no listings of lands currently owned by the New Jersey Natural Lands Trust in the study area.

There are, however, a number of state and federally owned lands within the study area of note and importance in terms of protection:

- Supawna Meadows National Wildlife Refuge - Pennsville, New Jersey
- Bombay Hook National Wildlife Refuge - Smyrna, Delaware
- Fort Mott State Park - Pennsville, New Jersey
- Hancock House State Historic Site - Hancocks Bridge, New Jersey
- Stow Creek Viewing Area - Stow Creek, New Jersey
- Abbotts Meadow Wildlife Management Area
- Mad Horse Creek Wildlife Management Area
- Salem River Wildlife Management Area
- Killcohook National Wildlife Refuge
- Augustine Wildlife Area – Delaware

- C&D Canal Wildlife Area – Delaware
- Cedar Swamp Wildlife Area – Delaware
- Woodland Beach Wildlife Area – Delaware
- Fort Point State Park – Delaware
- Bellevue State Park – Delaware
- Pea Patch Island/Fort Delaware State Park
- Upper Blackbird Creek Delaware National Estuarine Research Reserve

2.2.15 Wild and scenic river corridors, as defined in NJAC 7:7E-3.46(a)

(NJAC 7:1E-1.8(a)15)

According to NJDEP Bureau of Discharge Prevention's Environmentally Sensitive Areas Guidance Document, Wild and Scenic River Areas *"...are culturally and ecologically important. They contain plant, animal and fish life, and are used for recreational activities such as boating, swimming and fishing."*
There are no designated National Wild and Scenic Rivers or New Jersey Wild and Scenic Rivers in the study area.

2.3 ESA DELINEATION SUMMARY

Most of the nondeveloped reaches of the Delaware River, the Delaware Bay and their tributaries contain concentrations of ESAs. The Delaware Bay supports shoreline, marine features (fishing and shellfish areas), and wetlands throughout the study area, and these are resources that require protection for their important ecological value. Table IV-3 provides an indication of the presence/absence of ESAs within the study area. ESAs are presented on the attached Maps in Volume 3.

2.4 SEASONAL SENSITIVITY

(NJAC 7:1E-4.3(b)8i)

Many ESAs are more sensitive to discharges during certain times of the year. These areas may have seasonal floral and faunal activity, or may experience varying impacts based on the time of year (e.g., temperature fluctuation affects the fate and/or toxicity of discharged substances). Even though the sensitivity of individual ESAs varies from season to season, none of the ecological systems identified are exempt from environmental sensitivity during any season. Discharges will have some impact on watersheds and accompanying ESAs during any season. Table IV-4 lists the types of ESAs in the PSEG Nuclear LLC's study area and identifies their seasonal sensitivities.

SECTION 3: DISCHARGE IMPACT, ASSESSMENT AND RESPONSE

(NJAC 7:1E-4.3(b)8i)

3.1 PETROLEUM AND OTHER HAZARDOUS SUBSTANCES AT PSEG NUCLEAR LLC

The physical attributes and possible flowpaths of potential discharges from PSEG Nuclear LLC are discussed in this Section. Generally, PSEG Nuclear LLC has two types of hazardous substances, petroleum products and water treatment chemicals. Part II, Spill/Discharge Prevention Plan, Tables II-1 and II-2, provide the detailed descriptions and locations for each of the hazardous substances, secondary containments, and diversion systems for storage and unloading areas. The DPRP Inventory Map under the Maps Tab, shows hazardous substance storage and unloading area locations. The hazardous substances covered in this Plan are listed in Table IV-5, which provide important characteristics of the substances.

Petroleum Products

Petroleum products are generally flammable, non-miscible fluids. Viscosity and density vary greatly with type and temperature. Petroleum products are incompatible with strong oxidizers. For the purposes of this Plan, petroleum products have been divided into two classes:

- Class A petroleum (e.g., gasoline or kerosene) is highly volatile, with a low flashpoint.
- Class B petroleum (e.g., No. 2 fuel oil or lube oil) is a mid-weight oil that is more viscous than Class A petroleum, floats on water, and evaporates more slowly. Class B is liquid at conditions normally encountered during discharge, but may sink at low water temperatures.

Hazardous Substance Data

The locations and quantities of substances regulated by NJAC 7:1E at PSEG Nuclear LLC can be found in Part II. Data for each hazardous substance used or stored at each Station is found below.

No. 2 Fuel Oil -

No. 2 fuel oil, a Class B petroleum, is a yellow-brown oily liquid which floats on water at normal temperatures. At high concentrations, the fuel oil is dangerous to aquatic life. If the fuel oil reaches the shoreline, it will cause fouling.

Lube Oil -

Lube oil, a Class B petroleum, is a yellow-brown oily liquid at normal temperatures that will float on water. Under normal conditions this oil will not sink. The specific effects of low concentrations on aquatic life are unknown, but lube oil will act as any mid-weight petroleum product.

Transformer Oil -

This Class B petroleum product is an oily liquid that floats on water. Under normal occurring conditions, transformer oil will not sink. It may burn although it is not readily ignitable. The specific effects of low concentrations on aquatic life are unknown, but transformer oil will act as any mid-weight petroleum product.

Gasoline -

Gasoline (straight run), a Class A petroleum, is a colorless watery liquid that produces a flammable, irritating vapor, which will always float on water under normal conditions.

Diesel Fuel -

Diesel fuel, a Class B petroleum is an oily liquid which floats on water and has a lube/fuel oil odor. This yellow-brown liquid is dangerous to aquatic life in high concentrations.

Mineral Oil -

Mineral oil, also known as white oil, is a Class B, colorless, oily liquid which floats on water. Its effects on aquatic life are unknown at low concentrations; however, it will cause fouling to shoreline areas.

Oxidizers

Ammonium Hydroxide -

Ammonium hydroxide, a colorless, nonflammable liquid, floats and mixes with water and produces an irritating vapor. It can be neutralized by diluting and adding dilute hydrochloric or sulfuric acid. It is harmful to aquatic life in very low concentrations.

Sodium Hydroxide -

Sodium hydroxide, a clear, oily, odorless liquid that sinks and mixes with water, is not combustible. Sodium hydroxide is dangerous to aquatic life in high concentrations.

Sodium Hypochlorite -

Sodium hypochlorite, also known as liquid bleach, is a nonflammable, watery liquid with a green to yellow color. It will sink and mix with water. At very low concentrations, sodium hypochlorite is harmful to aquatic life and it may be dangerous if it enters water intakes. It is corrosive and can be destroyed with sodium bisulfite and water, then neutralized with soda ash.

Acids

Sulfuric Acid -

Sulfuric acid, a colorless, odorless, nonflammable, oily liquid, sinks and reacts violently with water by generating extreme heat. It produces an irritating mist on water and toxic fumes if heated, and is very corrosive. Sulfuric acid can be diluted with water then neutralized with lime, limestone, or soda ash. It is harmful to aquatic life in very low concentrations.

Reducers

Hydrazine -

Hydrazine is a colorless, oily liquid that smells like ammonia and produces an irritating, flammable vapor when mixed with water. Hydrazine reacts with many materials (glass, rubber, cork, stainless steel 316) and is corrosive. It is incompatible with petroleum products. Hydrazine can be neutralized by flushing with water and mixing with calcium hypochlorite. Hydrazine is harmful to aquatic life in very low concentrations.

Salt

Ammonium Bisulfite (70%) -

This yellow colored liquid is corrosive to both humans and materials. Thermal decomposition of ammonium bisulfite will result in elemental oxides.

Trisodium Phosphate -

Trisodium phosphate is a colorless, odorless chemical which is soluble in water. This salt is a noncombustible, eye, lung and skin irritant. During thermal decomposition, trisodium phosphate emits toxic fumes. This chemical is corrosive to metals.

3.2 PROTECTION AND CLEANUP OPTIONS

The options for protection of ESAs are discussed in detail in Volume 2, Appendix L, Protection and Cleanup Methods. The selected use of any of the methods will be dependent on a number of physical, environmental, and climatological conditions. Refer to Table IV-6 for a comparison of these options. Table IV-7 lists the preferred and secondary protection methods to protect ESAs from a petroleum based discharge. The information compiled for Tables IV-6 and IV-7 is taken from Oil Spill Cleanup and Options for Minimizing Adverse Ecological Impacts, written for the American Petroleum Institute, 1985, and "Understanding Oil Spills and Oil Spill Response" (USEPA, Office of Emergency and Remedial Response; EPA 540-K-99-007, December 1999). Protection methods for areas to be protected are provided in Table IV-8.

3.2.1 Containment and Diversion

Booms are used for containment of discharged petroleum products in open waters and protection of the shoreline. Booms are also used to direct petroleum from high velocity water to low velocity areas, where it can be held for recovery equipment. Booms can be used as an effective tool in directing discharged substances from critical ESAs, thus avoiding extensive cleanup of such areas. Other methods include water jets, air jets, air barriers, herding, beach berms, and berms and dams. (See Volume 2, Appendix L, Protection and Cleanup Methods, for more detail).

3.2.2 Removal and Recovery Options

Removal and recovery methods include skimming, sorption, vacuum pumping, vegetation cropping, flushing, beach cleaning, substrate removal, sand blasting, steam cleaning, burning, manual removal, and enhanced biodegradation. These methods are activated once a discharged substance is encroaching on an ESA. (See Volume 2, Appendix L, Protection and Cleanup Methods, for more detail).

3.2.3 Natural Cleansing

All forms of cleanup and removal, except natural cleansing, cause some disturbance or destruction of the environment. Cleanup efforts can be more destructive than the substance itself. Thus, natural cleansing should be the first cleanup option considered, assuming containment and diversion methods have failed. Natural cleansing sometimes becomes a necessity if there is no access or where cleanup operations would be environmentally hazardous.

3.2.4 Wildlife Deterrence

Visual, auditory, tactile, olfactory, and physiological effects may be used to keep wildlife away from a contaminated area. These methods aid in reducing impacts to species by precluding contact from discharged substances. Care must be taken when using such techniques, particularly during incubation and juvenile life stages. Deterrence can scare adult species away from nests, jeopardizing continued propagation.

3.2.5 Wildlife Rehabilitation

Wildlife rehabilitation is a last resort and is usually very inefficient. The development of a Spill Plan will provide protection of ESAs including wildlife. Cleansing of wildlife will be selected only if other options fail, and should not be considered as a sole option for discharge cleanup.

The Tri-State Bird Rescue and Research at 110 Possum Hollow Road, Newark, Delaware (302-737-9543) provides information and services for injured or oiled birds and should be contacted immediately if an event results in damage to any species of bird.

3.2.6 Non-Petroleum Substances

Most water treatment chemicals are soluble in water and thus are not easily controlled once they leave the site. Booming and sorption are not effective means for controlling water-soluble substances. In some cases neutralizing agents may be used; however, agents should be applied by trained personnel, with a full understanding of their reactions and properties.

3.2.7 Petroleum Products

Petroleum products pose a risk to workers if they accumulate in any location because of fumes and potential explosion hazards. Class B petroleum discharges are amenable to deflection or containment at collection points; while combustibility is always an issue with any petroleum-based substance, the vaporization effects are less than with Class A petroleum. Therefore, the use of skimmers, sorbent booms, and other removal and recovery devices is a more acceptable practice. Cascading deflection booms are a critical mechanism to ensure that spilled oil does not reach the interior portions of tributaries.

Class A Petroleum

Class A petroleum spreads rapidly, has high fluidity, can be toxic to living organisms, and has a strong odor. Because it evaporates quickly, the primary goal of the offsite deployment efforts is to deflect the discharge away from sensitive areas. This fuel poses a significant risk to workers if it accumulates in any location because of toxic fumes and potential explosion hazards. It will not adhere to surfaces readily. Dispersing, cascading deflecting booms, and allowing vaporization to occur will minimize the impacts of a discharge. Cleanup methods, if necessary, should be evaluated on a case-by-case basis using the most appropriate technique. These techniques are described in Volume 2, Appendix L, Protection and Cleanup Methods.

Class B Petroleum

Class B petroleum is mid-weight with varying toxicity. The primary goal of the offsite deployment efforts is to contain the discharge in the barge area and keep it away from sensitive areas by deflection booming. Containing the fuel oil, and keeping it away from ESAs through cascading deflecting booms will minimize the impacts of a fuel oil discharge. Skimmers can be used to remove the oil from the water at containment booming areas. Sorbent booms can also be used for beach protection and cleanup of affected areas. Class B petroleum may sink after weathering.

3.3 DISCHARGE IMPACT ASSESSMENT

An impact assessment will be performed for any areas affected by a discharge from PSEG Nuclear LLC. This assessment will be used to determine the proper cleanup options, to assess the ecologic and economic damage, and to assign personnel for cleanup.

SECTION 4: PROTECTION FROM, AND MITIGATION OF, POTENTIALLY ADVERSE IMPACT

(NJAC 7:1E-4.3(b)8i)

Section 4 describes the response to discharges. The objective of discharge response is to minimize the effects of a discharge on the human population and the environment. Response actions should be designed to stop the source of discharge, contain the pollutant, protect ESAs, and cleanup any such affected areas.

Response to an offsite discharge involves the following phases:

1. Discovery and Assessment (Section 4.2);

2. Initiation of Action and Defensive Measures (Section 4.3); and

3. Countermeasures and Cleanup (Section 4.4).

The response to discharges is based on specific river, weather, and discharge conditions. This Section discusses the types of protection to be used for specific discharges and areas. It also describes the staging areas for protection efforts and the equipment to be used. The decisions regarding areas to protect, types of equipment to be used, and personnel to be assigned will be made by Fire Department personnel at the scene of the discharge based on a careful consideration of the conditions. Refer to Part III, Section 4, for the specific actions to be taken in response to a discharge.

4.1 DISCHARGE IMPACT

4.1.1 Site Characteristics

PSEG Nuclear LLC at Artificial Island is formed by approximately 30 feet of hydraulic fill overlying a thin layer of river bed sand and gravel, which is on top of the Kirkwood silts and clays with interbedded layers of sand. The site is generally flat and is graded to direct surface flow toward the Delaware River. The site drainage system consists of underground piping, catch basins, and drainage ditches that intercept and convey the runoff to the Delaware River.

The maximum expected groundwater level at the site was estimated to be four feet below ground surface. Movement of groundwater at the site is quite slow as a result of the comparatively low coefficients of permeability and the low hydraulic gradients. Fluid infiltration in the site area is slow since the soil strata are relatively impermeable.

4.1.2 Discharge Scenarios

Discharge of hazardous substances to the Delaware River or the surrounding marshes is likely to occur through one of the following sources:

1. Overland flow;

2. Stormwater drainage system; or,

3. Wastewater treatment systems.

Possible sources of discharges include truck unloading areas, transformer spillage or leakage of dielectric fluid, or discharges of hazardous substances within the confines of a building that reach either the stormwater system or the wastewater treatment systems. PSEG Nuclear LLC has implemented control measures to minimize the risk of spills or leaks of hazardous substances in all areas of the site.

Unless a spill is contained or controlled onsite, it has the potential to reach the Delaware River or surrounding marshes. Once a discharge reaches the Delaware River, its impact on downstream and upstream environmentally sensitive areas will be a function of the amount of material discharged, tidal cycle, wind speed and direction, weather conditions, and the time of year as it affects environmental resources. Any change in the tidal direction or wind speed and direction prior to containment and/or cleanup may lead to impacts to other environmentally sensitive areas not initially impacted by the discharge.

In the event of a discharge to the environment, protection objectives include:

1. Assure the safety of response workers and any others who may be exposed to the discharge;

2. Contain the source;

3. Determine the extent of the discharge and its potential impact (See Section 4.2, this Part);

4. Notify appropriate governmental agencies;

5. To the extent practicable, deflect the discharge away from environmentally sensitive areas such as water intake structures, wetlands, mouths of tributaries, and beaches;

6. Contain the source of convenient points as practicable;

7. Implement appropriate protection and cleanup options as described in Section 3.2, this Part.

4.1.3 Delineation of Areas to be Protected

Surface Water Intakes

Surface water intakes may be potable water sources or industrial water used for process, cooling, and/or general plant use.

ESA Concentration Areas

ESA concentration areas are ecosystems that include a mixture of surface waters, parks, wildlife habitat, endangered species, wetlands, nesting areas, forest areas, wintering areas, or any other combination of previously described ESAs. They are areas in which a concentration of several ESAs occur. When several ESAs are present in one watershed the watershed itself is the object of protection and cleanup efforts.

Shoreline Features

Shoreline features include beaches, dunes, and bay islands.

Wildlife and Fish Habitat Areas

These areas include any area that is an ESA but not part of an ESA concentration area. This often includes fishing areas, shellfish harvesting waters, or any instance of a single ESA.

4.2 DISCOVERY AND ASSESSMENT

The first stage of discharge response involves discovery, notification of appropriate parties, and initial data gathering. The following questions should be answered in order to assess discharge impact and appropriate response measures.

The Discharge

1. What is the discharged substance?
2. What is the source of the discharge?
3. How much has been discharged?
4. How much could potentially be discharged?

Discharge Impact

1. Does the pollutant pose any danger to the response personnel or the public?
2. Have any areas been, or do any areas need to be, evacuated?

3. Is the discharge contained? If not:

   a. Where is it heading?

   b. What has been impacted?

   c. What will be impacted? When?

   d. Is the discharge under control?

4. Is wildlife present within the area that has been/may be impacted?

Discharge Response

1. What cleanup equipment and personnel are on hand or readily available?

2. What is the weather on the scene?

- Tide, current, and river condition
- Wind direction and speed
- Water and air temperature

3. What is the most effective response technique?

If the release is a hazardous chemical, great care should be taken to identify the chemical and take precautions against its hazards. Immediate action should be taken to stabilize the situation prior to cleanup and removal. When planning for cleanup and removal of a hazardous chemical release, a health and safety plan should be prepared for personnel protection and to involve all local emergency response agencies. Steps should be taken promptly to reduce or eliminate the following potential risks to human life and health as well as the environment:

1. Public exposure to acutely toxic substances;

2. Risk of contamination of drinking water and/or food supply; and

3. Fire or explosion hazards.

The procedures for notification, response, cleanup, and removal of a discharge are outlined in Part III, Spill/Discharge Response Plan.

4.2.1 Data Gathering

The answers to the questions in Worksheets 1 and 2 may be used to determine where the plume is heading, and what areas may be affected, based on chemical properties, climatological conditions, and tidal flow data. The determination of tidal cycle during discharge response, allows the response personnel to estimate the distance downstream that a discharge has progressed so that appropriate response equipment and personnel may be deployed.

Worksheet 1 *Discharge Data*		
1. What substance(s) have been discharged?	No. 2 fuel oil	
	Gasoline	
	Lube oil, PCB oil, transformer oil or mineral oil	
	Diesel Fuel	
	a mixture of petroleums	
	a non-petroleum substance	
	a mixture of petroleum and other substances	
	a mixture of other non-petroleum substances	
2. Does the discharge pose any danger to response personnel or the public?	Yes	
	No	
3. What is the source of the discharge (where did it leave the property)?	surface water discharge	
	overland flow	
	the discharge canal	
	Other	
4. Is the source contained?	Yes	
	No	
5. What is the extent of the discharge?	Approximate distance downstream (and upstream if the discharge is moving upstream also)	
	A location in terms of roads, towns, or other identifying features	
6. How much has been discharged?		
7. How much could potentially be discharged?		
8. What impacts or potential impacts to wildlife are apparent?	Primary contact with discharge – injured/dead Contact likely – large flocks of birds in vicinity Contact unlikely – no wildlife present Other	

Worksheet 2 *Climatological Data*		
Tide	**Hours from last high tide (see tidal charts)**	
	Direction of tidal current (see Worksheet 3)	
	Time until tidal current changes direction (see Worksheet 3)	
Current speed		
River state	**Calm**	
	Choppy	
	Rough	
	Other	
Wind direction		
Wind speed		
Water temperature		
Air temperature		
Time of year (month)		

Worksheet 3

Tidal Currents (at Delaware Point)

Hours From Last High Tide	Tidal Current (ebb/flood)	Time Until Tidal Current Changes
0	ebb	0 at flood (6 until tidal change again)
1	ebb	5
2	ebb	4
3	ebb	3
4	ebb	2
5	ebb	1
6	weak	0 at ebb (7 until tidal change again)
7	weak	6
8	flood	5
9	flood	4
10	flood	3
11	flood	2
12	flood	1

4.2.2 Prioritization

When manpower and equipment resources are limited, response activities must be prioritized. Protection priorities will vary depending upon the discharge material, tides, weather conditions, resource importance, seasonality and potential for impact. Discharge response priorities include:

1. **Public health and welfare** - The highest priority for protection is to reduce or eliminate human health impacts. Industrial water intakes should also be protected because of the potential for adverse secondary environmental impacts from disruption of process systems.

2. **Environmentally Sensitive Areas** - Most of the tributaries of the Delaware River and the wetland areas associated with them are considered Environmentally Sensitive Areas. Many of the tributaries contain multiple sensitive features, such as wetlands used by endangered/threatened species and open water habitats used by abundant wintering or migrating species. Use of cascading deflection booms at the mouths of any tributaries containing environmentally sensitive features is an effective mechanism for preventing discharged material from reaching such areas.

   Delaware River shoreline features can be prioritized in terms of protection by their distance from the facility and the makeup of the beach. Beaches within the study area are shown on the ESA Maps in Volume 3. NOAA's Environmental Sensitivity Index (NOAA, 1997) has classified shoreline habitats in terms of their priority for protection:

   a. ***Salt and brackish water marshes*** - Very common along the Delaware River and its tributaries. Flora and fauna are abundant, many locations representing critical habitat for a variety of species. Sediments composed of organic-rich mud.

   b. ***Sheltered tidal flats*** - Very large populations of shellfish, worms and snails. Heavily used by birds for foraging. Composed primarily of silt and clay with minor amounts of sand and shell. Sediments are very soft and cannot support even light foot traffic.

c. ***Sheltered seawalls and other solid structures made of concrete, wood, or metal*** - This shoreline type is prevalent throughout developed portions of the shoreline. Most of the structures are designed to protect a single lot, and thus can be variable in nature. Can have high recreational value, particularly in public places.

d. ***Vegetated, steeply sloping, riverine bluffs*** - This area comprises shorelines with low banks with grasses or eroding banks with trees exposed to the water.

e. ***Exposed tidal flats*** - Broad, intertidal areas composed primarily of sand and minor amounts of shell and sand. Biological utilization can be very high, with large numbers of infauna, heavy use by birds for roosting and foraging, and use by foraging fish.

f. ***Rip rap structures*** - Composed of cobble- to boulder-sized rock. Used for shoreline protection and bank stabilization. Associated biota is relatively sparse. Commonly used as fishing area.

g. ***Gravel beaches*** - Composed of sediments ranging in size from pebbles to boulders. Associated attached biota usually limited to the lower portions of the beach where sediments are less mobile. The presence of attached algae, mussels, and barnacles indicates beaches that are relatively sheltered, with the more stable substrate supporting a richer biota.

h. ***Mixed sand and gravel beaches*** - Because of mixed sediment sizes, there can be zones of pure sand, pebbles or cobbles. Sediment distribution can vary seasonally in response to storm events. Because of sediment desiccation and sediment mobility, low density of attached flora and fauna.

i. ***Fine-grained sand beaches*** - Generally flat and hard packed, commonly backed by dunes or seawalls. Utilized by birds for nesting, foraging, and loafing. In southern extreme of study area, particularly sensitive during the horseshoe crab season and migratory bird season (mid April - end of June).

j. ***Medium- to coarse-grained sand beaches*** - Beaches are moderately-to-steep, of variable width, and have soft sediments. Generally, species density and diversity less than fine-grained sand beaches.

k. ***Open water areas of Delaware River and Delaware Bay*** - The large expanses of open water provide habitat and resources for fish, shellfish, and other aquatic species. The general size of the water areas virtually precludes most attempts to readily control a discharge.

l. ***Exposed seawalls and other solid structures made of concrete wood or metal*** - Includes man-made structures such as seawalls, groins, revetments, piers, marinas, and port facilities. Areas are often heavily used by the public for recreational fishing and are common along the Delaware River shoreline.

4.3 INITIATION OF ACTION AND DEFENSIVE MEASURES

This phase of response involves notification of authorities and affected areas, and the deployment of protection equipment and personnel. Equipment and personnel should be assigned to locations based on the projected spread of the discharge and the priority for each location. Protection actions should be performed in accordance with information contained on the ESAPP Staging Map.

4.3.1 Source Containment

The most effective measure for spill response is to prevent discharges from leaving PSEG Nuclear LLC. It is imperative that responders try to locate and stop the source of discharge quickly in order to reduce the quantity of the discharged material. Refer to Part III for guidance on PSEG Nuclear LLC's discharge response activities.

4.3.2 Notification Requirements

Refer to Section 5 of Part III, Notification to Authorities, for notification requirements.

4.3.3 Protection Methods

The method of protection is based on the substance(s) discharged, the availability of staging areas for response, and the area(s) to be protected. Proper personnel protective equipment should be worn for discharge, cleanup, and removal activities.

4.3.3.1 Surface Water Intake

The only surface water intake in the study area is at PSEG Nuclear LLC. Response personnel will take all necessary and appropriate measures in accordance with NJAC 7:1E-5.7 to protect the intake area.

Table IV-9 shows the recommended protection actions for the surface water intake.

4.3.3.2 Response Actions for Protection of ESA Concentration Areas

Non-petroleum Substances

The state-of-the-art response for a discharge of non-petroleum, water soluble substances that mix in the water column, such as acids or bases, is to allow the substance to dilute in the water (Hazardous Materials, Spill Conference, 1992). Acute short-term toxicity may be high, but these substances dilute and lose toxicity quickly. The preferred course of action is isolation of sensitive areas, if possible, and to allow the chemical to vaporize and/or dilute in the River. Acids and bases can sometimes be neutralized. Temporarily deterring wildlife from the affected area may prevent fatalities. Booming is not recommended because it is ineffective for these substances and can put response personnel in danger. Response personnel should be aware of the chemical properties and the dangers of the discharged substance, and be properly equipped for protection. Weirs, earthen barriers, and other existing control structures may keep the substance from impacting the shoreline. If the discharge is a substance that will remain in the water column, actions should be taken to keep water-associated wildlife from entering the water. If the discharge is a substance that will form a vapor cloud, actions should be taken to disperse mobile wildlife that could be affected by the vapor cloud.

Class A Petroleum

The preferred course of action is isolation of sensitive areas and to allow for dilution in and vaporization from the water column. The discharge should be deflected from tributaries and sensitive shorelines. Earthen barriers can be set up on the beach to prevent the oil from washing ashore. The discharge should be deflected from a habitat area that is on land. It may be necessary to prevent the fuel from impacting nesting/breeding areas where it may interfere with bird and mammal habitats. The oil should be carefully diverted to the shoreline and the rate of evaporation increased or decreased with foam or water spray depending on climatological factors and the proximity of the habitat(s) (Hazardous Materials, Spill Conference, 1992, EPA, 99). The oil can be foamed to prevent evaporation, or the discharge can be dispersed with water spray to increase the rate of evaporation. Steps should be taken to ensure that a potentially explosive vapor cloud does not form.

Protection actions may include:

1. Placing deflection booms at the designated tributary booming, beach protection and/or habitat deflection areas;

2. Take actions to disperse mobile wildlife from shoreline that is or could be impacted by the discharge; and

3. If nesting/breeding wildlife will be affected by the vapor cloud, then place booms at the designated containment booming areas to prevent oil from reaching the nesting/breeding area. By preventing the oil from reaching the area, the vapor cloud concentration will be minimal.

Class B Petroleum

Class B oils should be contained or sorbent boomed to prevent their spread if river conditions permit. Deflection booms should also be used to prevent oil from spreading into sensitive areas such as tributaries or harbors. Contained petroleum should be removed with vacuum trucks or pumped to a salvage vessel. Small discharges can be absorbed with sorbent materials. Laying sorbent rolls along the near-level shoreline at low tide will help protect a beach on the rising tide.

Protection actions may include:

1. Placing deflection booms at the designated tributary booming, beach protection and/or habitat deflection areas;

2. Placing containment booms at the designated containment booming areas;

3. Using vacuum trucks to skim the oil off the water;

4. Placing sorbent booms at the designated tributary booming, beach protection and/or habitat deflection areas as backup of other booms;

5. Taking actions to disperse mobile wildlife from shoreline that is or could be affected by the discharge; and

6. If nesting/breeding wildlife will be affected, placing booms at the designated containment booming areas remote from the breeding area to prevent oil from reaching the nesting/breeding area. By preventing the oil from reaching the area, the vapor cloud concentration will be minimal.

During the winter, the presence of ice on the shoreline may keep oil from washing ashore. These conditions must be addressed as part of the overall assessment for deployment priorities. Small harbors or tributaries with currents of less than 1 knot can be exclusion boomed. If the current is one to two knots on the river, only one deflection boom is needed. If the current is more than two knots, then cascading booms should be used. Shallow rivers less than 0.5 meters deep can be protected by a diversion dike (Oil Spill Cleanup and Protection Techniques for Shorelines and Marshes, 1981).

Table IV-10 shows the recommended protection actions for ESA concentration areas.

4.3.3.3 Wildlife and Fish Habitat Areas

Wildlife deterrence mechanisms (Section 3.2.4) may be useful in the event that isolation through booming of the ESA is unsuccessful.

4.3.4 Discharge Response Locations

The variables that determine the fate of a discharge are tidal cycle, wind speed and direction, water and air temperature, wave height, and current. These factors must be considered in directing the implementation of spill response activities. Tributary deflection, shoreline/beach deflection, containment boom, and exclusion boom (for the surface water intake) locations are shown on the ESAPP Staging Map.

A discharge plume will generally travel downstream from PSEG Nuclear LLC on the Delaware River unless there are upstream tidal currents or high winds that push it upstream. Wind direction is the prevailing factor in the movement of floating substances. During an emergency response, the wind speed and direction should be taken into account. Impacts to tributaries will occur as a result of tidal fluctuations. Discharges originating from PSEG Nuclear LLC will enter downstream tributaries only during flood stage of the tidal cycle and only if the ebb tide first carries the discharge to or beyond the mouth of the tributary. Upstream tributaries will only be affected if the flood tide carries the discharge into the tributary.

Staging Areas for Protection

These areas are used for equipment assembly and are the first line of defense for protection of many ESAs. Areas need to be large enough to allow for assembly activities. These areas should be used as the location points for establishing primary tributary deflection booming. They can also be used as the access points for secondary deflection booming or surface water intake and shoreline protection. The area should be relatively close to the discharge location and a nearby boat ramp. Staging areas are listed in Table IV-11. Staging areas for any given discharge should be chosen based on the discharge and river conditions.

Natural Collection Points

Natural collection points are those points where a floating discharge will gather naturally. These areas are shown on the ESAPP Staging Map.

Boat Ramps

Boat ramps are good locations for parking vacuum trucks and allow response boats access to the water. Boat ramps were located by field investigation and from maps in the Delaware Estuary Public Access Guide. Locations of boat ramps within the study area are shown on the ESAPP Staging Maps located in Volume 3. The numbers indicated in the list below correspond to numbers on the ESAPP Staging Map. The locations of the ramps are identified as follows:

Boat Ramps

1. Augustine Beach Access Area, District No. 13, Delaware;

2. Woodland Beach State Wildlife Area, District No. 1, Delaware;

3. Lower Alloways Creek Municipal Boat Ramp, Hancocks Bridge, New Jersey;

4. Augustine State Wildlife Management Area, near C&D Canal, Delaware;

5. Ft. Mott State Park, due east of Pea Patch Island, New Jersey;

6. Dix Wildlife Management Area, Cohansey River, New Jersey;

7. Hancock's Harbor Marina, Cohansey River, New Jersey;

8. Maskells Mill Pond Wildlife Management Area, north of Stow Creek, New Jersey;

9. Port Penn, District No. 13, Delaware;

10. Appoquinimink Creek Access Area, District No. 14, Delaware;

11. Mad Horse Creek State Wildlife Management Area, Pine Island, Canton, New Jersey;

12. Bombay Hook National Wildlife Refuge, near Duck Creek, Delaware;

13. Summit North Full Service Marina, C&D Canal, Delaware City, Delaware;

14. Delaware City Access Area, Delaware City Branch Channel, Delaware;

15. Barnard's Delaware City Marina, Delaware City, Delaware;

16. Flemings Landing, Smyrna River, District No. 15, Delaware;

17. Cedar Swamp, District No. 15, Delaware; and

18. Penns Beach, Pennsville, New Jersey.

4.4 COUNTERMEASURES AND CLEANUP

If a discharge does reach an ESA, steps must be taken to mitigate the impact and cleanup the discharge.

4.4.1 Cleanup methods

4.4.1.1 ESA Concentration Areas, Including Wildlife and Fish Habitat Areas

These diverse ecological systems are capable of self-recovery if the underlying soil and root system and food web are left intact. Cleanup activities usually cause extensive damage to flora, root structures, and fauna at the bottom of the food chain. Ultimately, the cleanup may cause more damage than the discharge itself. Natural cleansing should be the first option considered.

For petroleum discharges, skimming and low-pressure water spraying can be used for cleanup if there is heavy oiling, but the response activities and access should be strictly supervised and controlled to prevent additional damage. Vegetation cutting may be effective in the early spring growing season but should not be the primary method considered. Sorbent can also be useful during cleanup if care is taken that all sorbent is removed after cleanup is finished.

Non-petroleum Substances

Acute short-term toxicity may be high but these substances dilute and lose toxicity quickly. The preferred course of action is to allow the chemical to vaporize and/or dilute in the River. Acids and bases can sometimes be neutralized. Booming is not recommended because it is ineffective for these substances and can put response personnel in danger.

Class A Petroleum

Cleanup actions may include:

1. Natural cleansing unless the size and the extent of the discharge requires other methods;

2. Low pressure flushing and vacuum removal;

3. Skimmers (rope or disc) especially on the fringe of a marsh;

4. Wildlife Deterrence, if needed;

5. Wildlife rehabilitation of birds and mammals, if needed;

6. Sorbent booming; and

7. Burning.

Class B Petroleum

Cleanup actions may include:

1. Natural cleansing, unless other methods are deemed necessary by a discharge impact assessment;

2. Wildlife Deterrence, if needed;

3. Wildlife rehabilitation of birds and mammals, if needed;

4. Vegetation cutting on the fringe of a marsh only if other options have been exhausted;

5. Skimmers (rope or disc) especially on the fringe of a marsh; and

6. Burning.

4.4.1.2 Shoreline Features

Cleanup actions for oil-related discharges at each of the shoreline features identified previously include:

a. ***Salt and brackish water marshes*** - Oil adheres readily to marsh vegetation. Band of coating may be variable depending on water levels and tidal movements. Oil can penetrate into the top few centimeters of the sediment and deeply into burrows and cracks. Best practice is to let the area recover naturally. Vacuum, sorbents or low-pressure flooding can remove heavy accumulation of pooled contaminants. Care must be taken to avoid relocating contaminated material to other sensitive areas. Cutting of oil should only be considered when the other resources present are at great risk from leaving the oiled vegetation in place.

b. ***Sheltered tidal flats*** - Oil does not typically adhere to exposed tidal flats. In areas of high-suspended sediments, sorption of oil can result in deposition of contaminated sediments on the flats. Potential for severe biological damage. Cleanup of the flat surface is very difficult because of the soft substrate and many methods may be restricted. Water flooding and deployment of sorbents from shallow-draft boats may be helpful.

c. ***Sheltered seawalls and other solid structures made of concrete, wood, or metal*** -Oil will adhere to rough surfaces, particularly along the high water line. Cleanup usually conducted for aesthetic reasons or to prevent leaching. Low to high pressure spraying at ambient water temperature is most effective removal option.

d. ***Vegetated, steeply sloping, riverine bluffs*** - During high water, oil will cover and coat riparian vegetation. Low pressure flushing of contaminated areas including substrate and vegetation. Sorbent and containment boom should be placed on the water side of the cleanup operations to contain and collect oil outflow.

e. ***Exposed tidal flats*** - Oil does not typically adhere to exposed tidal flats. Potential for severe biological damage. Currents and waves very effective in natural removal. Use of heavy equipment should be restricted to prevent oil from mixing in sediments.

f. ***Rip rap structures*** - Deep penetration of oil between boulders is likely. Left uncleaned, it may cause chronic leaching until oil hardens. High pressure spraying and/or water flooding may be effective. It may be necessary to remove heavily oiled riprap and replace it.

g. ***Gravel beaches*** - Deep penetration and rapid burial of stranded oil is likely on exposed beaches. Heavy accumulations of pooled oil should be removed quickly from the upper beach. All oiled debris should be removed. Low to high pressure flushing can be used to float oil away from sediments for recovery by skimmers and sorbents. Mechanical reworking of oiled sediments from the high tide area to the upper intertidal zone can be effective in areas regularly exposed to wave activity. In-place tilling may be used to reach deeply buried oil in the middle zone or exposed beaches.

h. ***Mixed sand and gravel beaches*** - Oil typically deposited as a band along the high water line. Oil penetration into beach sediments up to 50 cm. Burial of oil may be deep at and above the high tide line. Cleanup should concentrate on removing oil and oily debris from the upper water lines. Low pressure flushing can be used to float oil away from the sediments for recovery by skimmers or sorbents. High pressure spraying should be avoided because of potential for transporting contaminated finer sediments to the lower intertidal or subtidal zones. Mechanical reworking of oiled sediments from the high tide area to the upper intertidal zone can be effective in areas regularly exposed to wave activity. In-place tilling may be used to reach deeply buried oil in the middle zone or exposed beaches.

i. ***Fine-grained sand beaches*** - Oil typically deposited as a band along the high water line. Maximum penetration into fine-grained sand is approximately 10 cm. Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water. These beaches are among the easiest to clean. Cleanup should concentrate on removing oil and oily debris from the upper water lines. Manual cleanup rather than road graders and front-end loaders is advised to minimize the volume of sand removed from the beach areas. Efforts should focus on preventing the mixture of oil deeper into the sediments by vehicular or foot traffic.

j. ***Medium- to coarse-grained sand beaches*** - Oil typically deposited as a band along the high water line. Penetration into coarse-grained sand can reach 25 cm. Oil should be removed from the upper swash lines but should be limited to avoid erosion problems. Activity within oiled sand should be limited to prevent mixing oil deeper into the beach. Use of heavy equipment of oil/sand removal may result in the removal of excessive amounts of sand; manual cleanup may be more effective.

k. ***Open water areas of Delaware River and Delaware Bay*** - Considerations for cleanup of open water areas include natural dispersement and potential burning. In cases where oil product will float, natural volatilization may be most appropriate.

l. ***Exposed seawalls and other solid structures made of concrete wood or metal*** - Oil will adhere to rough surfaces, particularly along the high water line. Cleanup usually not required but may be conducted for aesthetic purposes because of the low faunal and floral makeup. High-pressure spraying may be required to remove persistent oil, improve aesthetics, and to prevent leaking of oil from the structure.

SECTION 5: TABLES

This Section contains the following tables associated with Part IV:

TABLE IV-1
POTENTIAL OFFSITE DISCHARGE POINTS FROM PSEG NUCLEAR LLC

Discharge Point	***Potential Spill Event***
Stormwater Drainage into Delaware River at several discharge points	Truck unloading area spill
	Lube oil or diesel fuel oil system leak
	Transformer oil or mineral oil system leak
	Chemical spill in the power plant building
Delaware River	Fuel oil storage tank/containment failure
	Chemical storage tank/containment failure
	Truck unloading area spill
	Transformer leak

TABLE IV-2

Expected Seasonal Occurrence of Bird Species In The Vicinity Of PSEG Nuclear, LLC With The Potential To Be Impacted By A Hazardous Spill

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Red-throated Loon	***Gavia stellata***	X	X	
Common Loon	***Gavia immer***	X	X	
[ab]Pied-billed Grebe	***Podilymbus podiceps***	X	X	X
Horned Grebe	***Podiceps auritus***	X	X	
Brown Pelican	***Pelecanus occidentalis***	X		X
Great Cormorant	***Phalacrocorax carbo***	X	X	
Double-crested Cormorant	***Phalacrocorax auritus***	X	X	X
[a]American Bittern	***Botaurus lentiginosos***	X	X	X
Least Bittern	***Ixobrychus exilis***	X		X
Great Blue Heron	***Ardea herodias***	X	X	X
Great Egret	***Casmerodius albus***	X	X	X
Snowy Egret	***Egretta thula***	X		X
Little Blue Heron	***Egretta caerulea***	X		X
Tricolored Heron	***Egretta tricolor***	X		X
Cattle Egret	***Bubulcus ibis***	X		X
Green Heron	***Butorides striatus***	X		X
[ab]Black-crowned Night-Heron	***Nycticorax nycticorax***	X	X	X
[ab]Yellow-crowned Night-Heron	***Nyctanassa violaceus***	X		X
Glossy Ibis	***Plegadis falcinellus***	X		X
Tundra Swan	***Cygnus columbianus***	X	X	
Mute Swan	***Cygnus olor***	X	X	X
Snow Goose	***Chen caerulescens***	X	X	
Brant	***Branta bernicla***	X	X	
Canada Goose	***Branta canadensis***	X	X	X
Wood Duck	***Aix sponsa***	X	X	X
Green-winged Teal	***Anas crecca***	X	X	X
American Black Duck	***Anas rubripes***	X	X	X
Mallard	***Anas platyrhynchos***	X	X	X

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Northern Pintail	***Anas acuta***	X	X	
Blue-winged Teal	***Anas discors***	X	X	X
Northern Shoveler	***Anas clypeata***	X	X	
Gadwall	***Anas Strepera***	X	X	X
Eurasian Wigeon	***Anas penelope***	X	X	
American Wigeon	***Anas americana***	X	X	
Canvasback	***Aythya valisineria***	X	X	
Redhead	***Aythya americana***	X	X	
Ring-necked Duck	***Aythya collaris***	X	X	
Greater Scaup	***Aythya marila***	X	X	
Lesser Scaup	***Aythya affinis***	X	X	
Common Eider	***Somateria mollissima***	X	X	
Oldsquaw	***Clangula hyemalis***	X	X	
Black Scoter	***Melanitta nigra***	X	X	
Surf Scoter	***Melanitta perspicillata***	X	X	
White-winged Scoter	***Melanitta fusca***	X	X	
Common Goldeneye	***Bucephala clangula***	X	X	
Bufflehead	***Bucephala albeola***	X	X	
Hooded Merganser	***Lophodytes cucullatus***	X	X	X
Common Merganser	***Mergus merganser***	X	X	X
Red-breasted Merganser	***Mergus serrator***	X	X	
Ruddy Duck	***Oxyura jamaicensis***	X	X	X
Black Vulture	***Coragyps atratus***	X	X	X
Turkey Vulture	***Cathartes aura***	X	X	X
[a]**Osprey**	***Pandion haliaetus***	X		X
[abc]**Bald Eagle**	***Haliaeetus leucocephalus***	X	X	X
[ab]**Northern Harrier**	***Circus cyaneus***	X	X	X
Sharp-shinned Hawk	***Accipiter striatus***	X	X	X
[ab]**Cooper's Hawk**	***Accipiter cooperii***	X	X	X
[a]**Northern Goshawk**	***Accipiter gentilis***	X	X	X
[a]**Red-shouldered Hawk**	***Buteo lineatus***	X	X	X
Broad-winged Hawk	***Buteo platypterus***	X		X
Red-tailed Hawk	***Buteo jamaicensis***	X	X	X

Species	Scientific Name	Migratory	Wintering	Breeding
Rough-legged Hawk	***Buteo lagopus***	X	X	
Golden Eagle	***Aquila chrysaetos***	X	X	
American Kestrel	***Falco sparverius***	X	X	X
Merlin	***Falco columbarius***	X	X	
[a]**Peregrine Falcon**	***Falco peregrinus***	X	X	X
Ring-necked Pheasant	***Phasianus colchicus***	X	X	X
Ruffed Grouse	***Bonasa umbellus***	X	X	X
Eastern Wild Turkey	***Meleagris gallopavo***	X	X	X
Northern Bobwhite	***Colinus virginianus***	X	X	X
Yellow Rail	***Coturnicops noveboracensis***	X		
[ab]**Black Rail**	***Laterallus jamaicensis***	X		X
Clapper Rail	***Rallus longirostris***	X	X	X
King Rail	***Rallus elegans***	X		X
Virginia Rail	***Rallus limocola***	X	X	X
Sora	***Porzana carolina***	X		X
Common Moorhen	***Gallinula chloropus***	X		X
American Coot	***Fulica americana***	X	X	X
Black-bellied Plover	***Pluvialis squatarola***	X		
American Golden-plover	***Pluvialis dominica***	X		
Semipalmated Plover	***Charadrius semipalmatus***	X		
[abc]**Piping Plover**	***Charadrius melodus***	X		X
Killdeer	***Charadrius vociferus***	X	X	X
[b]**American Oystercatcher**	***Haematopus palliatus***	X	X	X
Black-necked Stilt	***Himantopus mexicanus***	X		
American Avocet	***Recurvirostra americana***	X		
Greater Yellowlegs	***Tringa melanoleuca***	X	X	
Lesser Yellowlegs	***Tringa flavipes***	X		
Solitary Sandpiper	***Tringa solitaria***	X		
Willet	***Catoptrophorus semipalmatus***	X		X
Spotted Sandpiper	***Actitis macularia***	X		X
[ab]**Upland Sandpiper**	***Bartramia longicauda***	X		X
Whimbrel	***Numenius phaeopus***	X		
Hudsonian Godwit	***Limosa haemastica***	X		

Species	Scientific Name	Migratory	Wintering	Breeding
Marbled Godwit	***Limosa fedoa***	X		
Ruddy Turnstone	***Arenaria interpres***	X		
[a]Red Knot	***Calidris canutus***	X		
Sanderling	***Calidris alba***	X	X	
Semipalmated Sandpiper	***Calidris pusilla***	X		
Western Sandpiper	***Calidris mauri***	X	X	
Least Sandpiper	***Calidris minutilla***	X		
White-rumped Sandpiper	***Calidris fuscicollis***	X		
Baird's Sandpiper	***Calidris bairdii***	X		
Pectoral Sandpiper	***Calidris melanotos***	X		
Purple Sandpiper	***Calidris maritima***	X		
Dunlin	***Calidris alpina***	X	X	
Stilt Sandpiper	***Calidris himantopus***	X		
Buff-breasted Sandpiper	***Tryngites subruficollis***	X		
Short-billed Dowitcher	***Limnodromus griseus***	X		
Long-billed Dowitcher	***Limnodromus scolopaceus***	X		
Wilson's Snipe	***Gallinago gallinago***	X	X	X
American Woodcock	***Philohela minor***	X	X	X
Wilson's Phalarope	***Phalaropus tricolor***	X		
Red-necked Phalarope	***Phalaropus lobatus***	X		
Red Phalarope	***Phalaropus fulicarias***	X		
Laughing Gull	***Larus atricilla***	X	X	X
Little Gull	***Larus minutus***	X	X	
Common Black-headed Gull	***Larus ridibundus***	X	X	
Bonaparte's Gull	***Larus philadelphia***	X	X	
Ring-billed Gull	***Larus delawarensis***	X	X	X
Herring Gull	***Larus argentatus***	X	X	X
Iceland Gull	***Larus glaucoides***	X	X	
Lesser Black-backed Gull	***Larus fuscus***	X	X	
Glaucous Gull	***Larus hyperboreus***	X	X	
Great Black-backed Gull	***Larus marinus***	X	X	X
Gull-billed Tern	***Sterna nilotica***	X		X
Caspian Tern	***Sterna caspia***	X		

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Royal Tern	***Sterna maxima***	X		
[ac]**Roseate Tern**	***Sterna dougallii***	X		X
[b]**Common Tern**	***Sterna hirundo***	X		X
[b]**Forster's Tern**	***Sterna forsteri***	X		X
[ab]**Least Tern**	***Sterna antillarum***	X		X
Black Tern	***Childonias niger***	X		
[ab]**Black Skimmer**	***Rynchops niger***	X		X
Rock Dove	***Columba livia***	X	X	X
Mourning Dove	***Zenaida macroura***	X	X	X
Black-billed Cuckoo	***Coccyzus erythropthalmus***	X		X
Yellow-billed Cuckoo	***Coccyzus americanus***	X		X
Common Barn Owl	***Tyto alba***	X	X	X
Eastern Screech Owl	***Otus asio***	X	X	X
Great Horned Owl	***Bubo virginianus***	X	X	X
[a]**Barred Owl**	***Strix varia***	X	X	X
[a]**Long-eared Owl**	***Asio otus***	X	X	X
[ab]**Short-eared Owl**	***Asio flammeus***	X	X	X
Northern Saw-whet Owl	***Aegolius acadicus***	X	X	X
Common Nighthawk	***Chordeiles minor***	X		X
Chuck-will's-widow	***Caprimulgus carolinensis***	X		X
Whip-poor-will	***Caprimulgus vociferus***	X		X
Chimney Swift	***Chaetura pelagica***	X		X
Ruby-throated Hummingbird	***Archilochus colubris***	X		X
Belted Kingfisher	***Ceryle alcyon***	X	X	X
[ab]**Red-headed Woodpecker**	***Melanerpes erythrocephalus***	X	X	X
Red-bellied Woodpecker	***Melanerpes carolinus***	X	X	X
Yellow-bellied Sapsucker	***Sphyrapicus varius***	X	X	
Downy Woodpecker	***Picoides pubescens***	X	X	X
Hairy Woodpecker	***Picoides villosus***	X	X	X
Northern Flicker	***Colaptes auratus***	X	X	X
Pileated Woodpecker	***Dryocopus pileatus***	X	X	X
Olive-sided Flycatcher	***Contopus borealis***	X		
Eastern Wood Pewee	***Contopus virens***	X		X

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Yellow-bellied Flycatcher	***Empidonax flaviventris***	X		
Acadian Flycatcher	***Empidonax virescens***	X		X
Alder Flycatcher	***Empidonax alnorum***	X		X
Willow Flycatcher	***Empidonax traillii***	X		X
Least Flycatcher	***Empidonax minimus***	X		X
Eastern Phoebe	***Sayornis phoebe***	X		X
Great Crested Flycatcher	***Myiarchus crinitus***	X		X
Eastern Kingbird	***Tyrannus Tyrannus***	X		X
Horned Lark	***Eremophila alpestris***	X	X	X
Purple Martin	***Progne subis***	X	X	X
Tree Swallow	***Tachycineta bicolor***	X	X	X
Northern Rough-winged Swallow	***Stelgidopteryx serripennis***	X		X
Bank Swallow	***Riparia riparia***	X		X
Cliff Swallow	***Hirundo pyrrhonota***	X		X
Barn Swallow	***Hirundo rustica***	X		X
Blue Jay	***Cyanocitta cristata***	X	X	X
American Crow	***Corvus brachyrhynchos***	X	X	X
Fish Crow	***Corvus ossifragus***	X	X	X
Black-capped Chickadee	***Paurs atricapillus***	X	X	X
Carolina Chickadee	***Parus carolinensis***	X	X	X
Tufted Titmouse	***Parus bicolor***	X	X	X
Red-breasted Nuthatch	***Sitta canadensis***	X	X	X
White-breasted Nuthatch	***Sitta carolinensis***	X	X	X
[b]**Brown Creeper**	***Certhia americana***	X	X	X
Carolina Wren	***Thryothorus ludovicianus***	X	X	X
House Wren	***troglogytes aedon***	X		X
Winter Wren	***troglodytes troglodytes***	X	X	
[ab]**Sedge Wren**	***Cistothorus platensis***	X	X	X
Marsh Wren	***Cistothorus palustris***	X	X	X
Golden-crowned Kinglet	***Regulus satrapa***	X	X	
Ruby-crowned Kinglet	***Regulus calendula***	X	X	
Blue-gray Gnatcatcher	***Polioptila caerulea***	X		X
Eastern Bluebird	***Sialia sialis***	X	X	X

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Veery	***Catharus fuscescens***	**X**		
Gray-cheeked Thrush	***Catharus minimus***	**X**		
Swainson's Thrush	***Catharus ustulatus***	**X**		
Hermit Thrush	***Catharus guttatus***	**X**	**X**	
Wood Thrush	***Hylocichla mustelina***	**X**		
American Robin	***Turdus migratorius***	**X**	**X**	**X**
Gray Catbird	***Dumetella carolinensis***	**X**	**X**	**X**
Northern Mockingbird	***Mimus polyglottos***	**X**	**X**	**X**
Brown Thrasher	***Toxostoma rufum***	**X**	**X**	**X**
American Pipit	***Anthus rubescens***	**X**	**X**	
Cedar Waxwing	***Bombycilla cedrorum***	**X**	**X**	**X**
Northern Shrike	***Lanius exubitor***		**X**	
[ab]**Loggerhead Shrike**	***Lanius ludovicianus***	**X**	**X**	
European Starling	***Sturnus vulgaris***	**X**	**X**	**X**
White-eyed Vireo	***Vireo griseus***	**X**		**X**
Blue-headed Vireo	***Vireo solitarius***	**X**		
Yellow-throated Vireo	***Vireo flavifrons***	**X**		**X**
Warbling Vireo	***Vireo gilvus***	**X**		**X**
Philadelphia Vireo	***Vireo philadelphicus***	**X**		
Red-eyed Vireo	***Vireo olivaceus***	**X**		**X**
Blue-winged Warbler	***Vermivora pinus***	**X**		**X**
Golden-winged Warbler	***Vermivora chrysoptera***	**X**		
Tennessee Warbler	***Vermivora peregrina***	**X**		
Orange-crowned Warbler	***Vermivora celata***	**X**		
Nashville Warbler	***Vermivora reficapilla***	**X**		**X**
[b]**Northern Parula**	***Parula americana***	**X**		**X**
Yellow Warbler	***Dendroica petechia***	**X**		**X**
Chestnut-sided Warbler	***Dendroica pensylvanica***	**X**		
Magnolia Warbler	***Dendroica magnolia***	**X**		**X**
Cape May Warbler	***Dendroica tigrina***	**X**		
Black-throated Blue Warbler	***Dendroica caerulescens***	**X**		
Yellow-rumped Warbler	***Dendroica coronata***	**X**	**X**	
Black-throated Green Warbler	***Dendroica virens***	**X**		

Species	Scientific Name	Migratory	Wintering	Breeding
Blackburnian Warbler	***Dendroica fusca***	X		
Yellow-throated Warbler	***Dendroica dominica***	X		X
Pine Warbler	***Dendroica pinus***	X		X
Prairie Warbler	***Dendroica discolor***	X		X
Palm Warbler	***Dendroica palmarum***	X		
Bay-breasted Warbler	***Dendroica castanea***	X		
Blackpoll Warbler	***Dendroica striata***	X		
[b]**Cerulean Warbler**	***Dendroica cerulea***	X		
Black-and-white Warbler	***Miniotilta varia***	X		X
American Redstart	***Setophaga ruticilla***	X		X
Prothonotary Warbler	***Protonotaria citrea***	X		
Worm-eating Warbler	***Helmitheros vermivorus***	X		
Ovenbird	***Seiurus aurocapillus***	X		X
Northern Waterthrush	***Seiurus noveboracensis***	X		
Louisiana Waterthrush	***Seiurus motacilla***	X		
Kentucky Warbler	***Oporornis formosus***	X		
Connecticut Warbler	***Oporornis agilis***	X		
Mourning Warbler	***Oporornis philadelphia***	X		
Common Yellowthroat	***Geothlypis trichas***	X		X
[b]**Hooded Warbler**	***Wilsonia citrina***	X		X
Wilson's Warbler	***Wilsonia pusilla***	X		
Canada Warbler	***Wilsonia canadensis***	X		
Yellow-breasted Chat	***Icteria virens***	X		X
Summer Tanager	***Piranga rubra***	X		X
Scarlet Tanager	***Piranga olivacea***	X		X
Northern Cardinal	***Cardinalis cardinalis***	X	X	X
Rose-breasted Grosbeak	***Pheucticus ludovicianus***	X		X
Blue Grosbeak	***Guiraca caerulea***	X		X
Indigo Bunting	***Passerina cyanea***	X		X
Dickcissel	***Spiza americana***	X		X
Eastern Towhee	***Pipilo erythrophthalmus***	X	X	X
American Tree Sparrow	***Spizella arborea***	X	X	
Chipping Sparrow	***Spizella passerina***	X	X	X

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Field Sparrow	***Spizella pusilla***	X	X	X
[a]Vesper Sparrow	***Pooecetes gramineus***	X	X	X
[a]Savannah Sparrow	***Passerculus sandwichensis***	X	X	X
[a]Grasshopper Sparrow	***Ammodramus savannarum***	X		X
[ab]Henslow's Sparrow	***Ammodramus henslowii***	X		X
Saltmarsh Sharp-tailed Sparrow	***Ammodramus caudacutus***	X	X	X
Nelson's Sharp-tailed Sparrow	***Ammodramus nelsoni***	X		
Seaside Sparrow	***Ammodramus maritima***	X		X
Fox Sparrow	***Passerella iliaca***	X	X	
Song Sparrow	***Melospiza melodia***	X	X	X
Lincoln's Sparrow	***Melospiza lincolnii***	X		
Swamp Sparrow	***Melospiza georgiana***	X	X	X
White-throated Sparrow	***Zonotrichia albicollis***	X	X	
White-crowned Sparrow	***Zonotrichia leucophrys***	X	X	
Dark-eyed Junco	***Junco hyemalis***	X	X	
Lapland Longspur	***Calcarius lapponicus***	X	X	
Snow Bunting	***Plectophenax nivalis***	X	X	
[a]Bobolink	***Dolichonyx oryzivorus***	X		X
Red-winged Blackbird	***Agelaius phoeniceus***	X	X	X
Eastern Meadowlark	***Sturnella magna***	X	X	X
Rusty Blackbird	***Euphagus carolinus***	X	X	
Boat-tailed Grackle	***Quiscalus major***	X	X	X
Common Grackle	***Quiscalus quiscula***	X	X	X
Brown-headed Cowbird	***Molothrus ater***	X	X	X
Orchard Oriole	***Icterus spurius***	X		X
Baltimore Oriole	***Icterus galbula***	X		X
Purple Finch	***Carpodacus purpureus***	X	X	X
House Finch	***Carpodacus mexicanus***	X	X	X
Red Crossbill	***Loxia curvirostra***	X		
White-winged Crossbill	***Loxia leucoptera***	X		
Common Redpoll	***Carduelis flammea***	X		
Pine Siskin	***Carduelis pinus***	X	X	
American Goldfinch	***Carduelis tristis***	X	X	X

Species	*Scientific Name*	*Migratory*	*Wintering*	*Breeding*
Evening Grosbeak	***Hesperiphona vespertinus***		X	
House Sparrow	***Passer domesticus***	X	X	X

[a]Listed on the New Jersey Endangered and Threatened Species List (NJAC 7:25 4-13).
[b]Listed on Delaware Endangered Species List.
[c]Listed on the Federal Endangered and Threatened Species List (50 CFR 17.11(b).

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TABLE IV-3 PRESENCE/ABSENCE OF ESAs BY WATERSHED

	Sources of Water Supply	Bay Island and Barrier Island corridors	Beaches	Dunes	Wetland and Wetland Transition Areas	Breeding Areas for Forest Nesting Species and Colonial Waterbirds	Breeding Areas for Aquatic Furbearers	Migratory Stopover Areas	Wintering Areas	Coastal Tidal Marshes	Atlantic White Cedar Stands	Prime Fishing Areas	Finfish Migratory Pathways	Estuarine Areas Supporting Submerged Vegetation	Shellfish Harvesting Waters *	Forest Areas	Endangered or Threatened Plant or Animal Species	Wilderness Areas	Wild, Scenic, Recreational or Developed Rivers
New Jersey*																			
Fishing Creek				X	X	X	X	X	X	X			X				X	X	
Buck Ditch					X		X		X	X									
Cat Gut					X				X	X							X		
Pattys Fork					X	X	X	X	X	X							X	X	
Hope Creek				X	X	X	X	X	X	X							X	X	
Solters Creek					X	X	X		X	X								X	
Alloways Creek				X	X	X	X	X	X	X			X				X	X	
Deep Run						X	X						X				X	X	
Salem River				X	X	X	X	X	X	X			X				X	X	
Baldridge Creek				X	X	X	X	X	X	X							X	X	
Supawna Meadows				X	X	X	X	X	X	X							X	X	
Fenwick Creek					X	X	X		X								X	X	
Keasbeys Creek					X		X		X										
Mannington Creek and Meadows					X	X	X	X	X	X			X				X	X	
Kates Creek					X	X			X	X			X				X		
Pea Patch Island			X	X	X	X		X	X	X							X	X	
Miles Creek					X												X		
Delaware River	X		X	X	X	X	X	X	X	X			X	X	X		X	X	
Middle Marsh and Division Creek					X	X	X		X	X							X		
Drumbo Creek					X	X	X		X	X							X		
Cherry Tree Creek				X	X		X		X	X									
Lower Deep Creek				X	X		X		X										
Black Ditch				X	X	X	X	X	X	X			X				X		
Straight Ditch				X	X	X	X	X	X	X			X				X		

TABLE IV-3 PRESENCE/ABSENCE OF ESAs BY WATERSHED

	Sources of Water Supply	Bay Island and Barrier Island corridors	Beaches	Dunes	Wetland and Wetland Transition Areas	Breeding Areas for Forest Nesting Species and Colonial Waterbirds	Breeding Areas for Aquatic Furbearers	Migratory Stopover Areas	Wintering Areas	Coastal Tidal Marshes	Atlantic White Cedar Stands	Prime Fishing Areas	Finfish Migratory Pathways	Estuarine Areas Supporting Submerged Vegetation	Shellfish Harvesting Waters *	Forest Areas	Endangered or Threatened Plant or Animal Species	Wilderness Areas	Wild, Scenic, Recreational or Developed Rivers
Mill Creek (S)				X	X	X	X	X	X	X			X				X		
Mill Creek (N)					X	X	X		X	X			X				X	X	
Salem Canal				X	X	X	X		X	X							X		
Reedy Island			X	X	X				X	X								X	
Cohansey River					X	X	X		X	X			X				X	X	
Ayres Creek					X	X	X		X	X							X		
Cabin Creek					X	X	X		X	X							X		
Stow Creek				X	X	X	X	X	X	X			X				X	X	
Phillips Creek				X	X	X	X		X	X							X		
Raccoon Ditch					X	X	X		X	X			X				X	X	
New Port Meadows					X	X	X		X	X							X		
Mad Horse Creek				X	X	X	X	X	X	X			X					X	
Upper Deep Creek					X		X		X	X								X	
Little Creek					X	X	X		X	X							X		
Malapartis Creek					X	X	X		X	X							X	X	
Silver Lake Fork					X	X	X		X	X							X	X	
Turners Fork					X	X	X		X	X							X		
Silver Lake Meadow					X	X		X	X	X							X		
Delaware**																			
Blackbird Creek				X	X	X	Xa	X	X	X			X				X	X	
The Big Ditch					X	X	Xa	X	X	X			X				X	X	
Mill Creek					X	X	Xa	X	X	X			X				X	X	
Fishing Creek					X	X	Xa	X	X	X			X				X	X	
Appoquinimink River				X	X	X	Xa	X	X	X			X				X	X	
Hangmans Run					X	X	Xa	X	X	X			X				X	X	
Skunk Hill Ditch					X	X	Xa	X	X	X			X				X	X	

TABLE IV-3 PRESENCE/ABSENCE OF ESAs BY WATERSHED

	Sources of Water Supply	Bay Island and Barrier Island corridors	Beaches	Dunes	Wetland and Wetland Transition Areas	Breeding Areas for Forest Nesting Species and Colonial Waterbirds	Breeding Areas for Aquatic Furbearers	Migratory Stopover Areas	Wintering Areas	Coastal Tidal Marshes	Atlantic White Cedar Stands	Prime Fishing Areas	Finfish Migratory Pathways	Estuarine Areas Supporting Submerged Vegetation	Shellfish Harvesting Waters *	Forest Areas	Endangered or Threatened Plant or Animal Species	Wilderness Areas	Wild, Scenic, Recreational or Developed Rivers
Lower Break				X	X	X		X	X	X							X	X	
Upper Break				X	X	X		X	X	X							X	X	
Silver Run				X	X	X	Xa	X	X	X			X				X	X	
Augustine Creek				X	X	X	Xa	X	X	X							Xb		
St. Georges Creek					X	X		X	X	X							X	X3	
Chesapeake and Delaware Canal				X 4	X	X		X	X	X			X				X	X3	
Delaware Branch Channel				X	X				X	X									
Broadway Meadows					X	X	Xa	X	X	X							Xa	X1	
Duck Creek					X	X	Xa	X	X	X							Xa	X1	
Smyrna River					X	X	Xa	X	X	X			X		X		Xd	X1	(Ta-ble IV-2)
Sawmill Branch					X	X	Xa	X	X	X					X		Xd	X1	
Shorts Landing					X	X	Xa	X	X	X					X		Xd	X1	
Straight Ditch					X	X	Xa	X	X	X					X		Xd	X1	
Corks Point Ditch					X	X	Xa	X	X	X			X		X		Xd	X1	
Cedar Swamp			X		X	X	Xa	X	X	X							Xc	X2	
Middle Drain				X	X	X		X	X	X							Xc	X2	
River Shore Ditch			X		X	X	Xa	X	X	X							Xc	X2	
Peach House Ditch				X	X	X		X	X	X							Xc	X2	
Rays Ditch					X	X		X	X	X							Xc	X2	
White Oak Ditch					X	X		X	X	X							Xc	X2	
Dragon Creek					X				X	X									
Cedar Creek				X	X				X	X									
Red Lion Creek				X	X				X	X									

* Table for New Jersey waterbodies is based solely on information from maps by Public Service Electric and Gas Company (Surveys and Mapping).
** Table for Delaware waterbodies based on maps from RPI (1985).

1 Woodland Beach Wildlife Area
2 Appoquinimink Wildlife
3 Chesapeake and Delaware Canal Wildlife Area
4 Rip Rap along length

a Assumed based on mapping data
b Great Blue Heron
c Bald Eagle noted on RPI maps
d Bald Eagle and Peregrine Falcon noted on RPI maps

TABLE IV-4 SEASONAL SENSITIVITY OF ESA IN THE PSEG NUCLEAR LLC STUDY AREA					
ESA	*SPRING*	*SUMMER*	*FALL*	*WINTER*	*COMMENTS*
SOURCES OF WATER SUPPLY					
A. Domestic	X	X	X	X	Potable water supplies will be the primary concern during all seasons. In order to protect public health, water supply intakes must be protected from any spills.
B. Industrial	X	X	X	X	During times of plant shutdown, protection of facility intake may be of less importance. These times are short and not seasonal.
BEACHES					
A. Medium to Coarse Sand	X	X	X		Most prevalent in study area. Habitat and recreational value. Cleanup difficult because of soft sediment.
B. Mixed Sand and Gravel	X	X	X		Combination of habitat and recreational value. Sensitivity increases because of potential negative impact to biota.
C. Gravel Beaches & Rip Rap	X	X	X	X	Biota may be diverse and bountiful.
D. Fine Sand	X	X	X		Easiest to clean. Recreational and biological value. Particularly vulnerable during spring migration season.
WETLANDS					
A. Wetlands	X	X	X	X	The sensitivity of wetlands is directly linked to their habitat value. These areas have numerous wildlife and food production benefits. In most cases, species are perennial and will regenerate quickly after disturbance. More damage can be done by manual and equipment cleanup than by spilled substance. If spilled substance is in quantity to smother or be toxic to plants, possibility exists for severe erosion of wetland. A high priority for protection during any time of the year.
B. Wetland Transition Areas	X	X	X	X	Similar to wetlands, wetland transition areas provide habitat value for numerous species. The areas are upland of wetland areas and therefore are likely to be affected by spill events during periods of high flow.**COLONIAL WATERBIRDS/ MIGRATORY STOPOVER AREAS AND WINTERING AREAS** - see Seasonal Occurrence of Birds (Table IV-2)
AQUATIC FURBEARERS/ RIVER OTTERS	X	X			Spring and summer are breeding season.

TABLE IV-4 SEASONAL SENSITIVITY OF ESA IN THE PSEG NUCLEAR LLC STUDY AREA					
ESA	*SPRING*	*SUMMER*	*FALL*	*WINTER*	*COMMENTS*
FINFISH MIGRATORY PATHWAYS	X	X	X		The Delaware River and tributaries mapped serve as important spawning runs for American shad, alewife, and blueback herring.
SHELLFISH HARVESTING AREAS			X	X	Commercially portions of the shellfish areas in the study area are harvestable. A major portion of the area is classified as prohibited for shellfish harvesting. Changes in designation will provide changes in sensitivity. Because of relative immobility of sources and feeding mechanisms, any discharge that is not cleaned or mitigated will cause further damage to the resource.
ENDANGERED AND THREATENED SPECIES	X	X	X	X	A wide variety of endangered and threatened species inhabit the study area. Many species are plants that will be highly susceptible to spills during any part of the growing season. Specific life histories may make some plants more susceptible than others. Most of the species within the study area are associated with water bodies or wetlands. These areas have been denoted as sensitive throughout the year because of their ecological value. Several species of birds such as the eagle and peregrine falcon noted in study area.
WILDLIFE MANAGEMENT AREAS	X	X	X	X	The vast array of flora and fauna found in many of these areas incorporate life cycles that overlap. Thus, protection of such areas are critical at all times of the year.

TABLE IV-5
PHYSICAL PROPERTIES FOR CHEMICALS PRESENT AT PSEG NUCLEAR LLC

Chemical	*Class (for petroleum products)*	*Mixes with water*	*Sinks in water*	*Floats on the water surface*	*Forms a vapor cloud over water*	*Toxicity*	*Specific Gravity*	*Freezing Point °F*	*Boiling Point °F at 1 atm*	*Do not mix with...*
N/A - not available										
No. 2 fuel oil	B			X		N/A	0.879 at 20°C	-20	540-640	flame or fire
Lube oil	B			X		N/A	.902 at 20°C		very high	fire or flame
Transformer oil/ Mineral oil	B			X		N/A	.883 at 15°C	The pour point is >-60	>300	fire or flame
Gasoline	A			X	X	medium	.747 at 15°C		58-275	fire or flame
Diesel Fuel	A			X		low	.841 at 16°C	0 to -30	550-640	fire or flame
Ammonium hydroxide		X		X	X	high	.89 at 20°C	N/A	N/A	acids heavy metals
Sodium hydroxide		X	X			medium	2.13 at 20°F	604	very high	acids heavy metals
Sodium hypochlorite		X	X			high	1.06 at 20°C	N/A	decomp.	water, acids, metals, combust, organics, peroxides, zinc, aluminum, halogenated hydrocarbons petroleum products
Sulfuric acid		X	X		X	high	1.84 at 20°F	N/A	644	reducers combustibles
Hydrazine		X			X	high	1.008 at 20°F	35	236.3	oxidizers petroleum products acids fire or flame
Ammonium bisulfite		X			X	high	1.406 at 7°F	10°F		acids or alkalides

TABLE IV-5
PHYSICAL PROPERTIES FOR CHEMICALS PRESENT AT PSEG NUCLEAR LLC

Chemical	*Class (for petroleum products)*	*Mixes with water*	*Sinks in water*	*Floats on the water surface*	*Forms a vapor cloud over water*	*Toxicity*	*Specific Gravity*	*Freezing Point °F*	*Boiling Point °F at 1 atm*	*Do not mix with...*
N/A - not available										
Trisodium phosphate		X				low	1.62 at 4°F	750°F	N/A	acids

TABLE IV-6
CLEANUP OPTIONS AND THEIR GENERAL APPLICATIONS

Option	Application		
	Water Surface	*Underwater*	*Shoreline*
CONTAINMENT AND DIVERSION			
Booms	X		X
Sorbent Booms	X		X
Water Jets	X		
Air Jets	X		
Air Barriers	X		
Underwater Containment		X	
Jelling	X		
Herding	X		
REMOVAL AND RECOVERY			
Skimming	X		X
Sorption	X	X	X
Vegetation Cropping		X	X
Flushing			X
Beach Cleaning			X
Substrate Removal		X	X
Sand Blasting			X
Steam Cleaning			X
Burning	X		X
Manual Removal	X		X
Vacuum Pumping	X	X	X
Enhanced Biodegradation	X	X	X
NATURAL CLEANSING	X	X	X
WILDLIFE DETERRENCE	X	X	X
WILDLIFE REHABILITATION	X		X

TABLE IV-7
PROTECTION METHODS FOR ESAs

Type of ESA	*Preferred Protection for Oil Spills*	*Secondary Protection for Oil Spills*
Surface water [open water]	Booms/skimmers	Burning; sorbents
Sources of water supply [enclosed open water]	Booms/skimmers; herding; sorbents	Vacuum pumping
Beaches [sandy or gravel]	Booms/skimmers	Herding; sorbents
Dunes [sandy beaches]	Booms/skimmers; earthen barriers	
Wetlands & wetland transition areas [salt marshes]	Booms/skimmers; earthen barriers	Herding; sorbents
Breeding areas for forest area nesters, colonial waterbirds, or aquatic furbearers [special use]	Booms/skimmers	Wildlife deterrence
Migratory stopovers [special use]	Booms/skimmers	Wildlife deterrence
Prime fishing areas [enclosed open water]	Booms/skimmers; herding; sorbents	Vacuum pumping
Finfish migratory pathways [enclosed open water]	Booms/skimmers; herding; sorbents	Vacuum pumping
Shellfish harvesting waters [enclosed open water]	Booms/skimmers; herding; sorbents	Vacuum pumping
Habitat for federal or state endangered or threatened species [special use]	Booms/skimmers	N/A
Federal or state wilderness areas [special use]	Booms/skimmers	N/A

TABLE IV-8
PROTECTION METHODS FOR DESIGNATED AREAS

	Class A Petroleum	*Class B Petroleum*	*Substances that sink in water*	*Substances that form a vapor cloud over water*
Surface water	Booms (dispersion or cascading deflection)	Booms/skimmers; Sorbents		
Sources of water supply	Booms (dispersion or cascading deflection)	Booms/skimmers; Herding; Sorbents; Vacuum pumping		
Beaches	Booms (dispersion or cascading deflection) Herding; Foam or Water spray	Booms/skimmers; Herding; Sorbents; Vacuum pumping	Wildlife deterrence	Wildlife deterrence
Wetlands/ESA concentration areas	Booms (dispersion or cascading deflection); Wildlife deterrence	Booms/skimmers; Earthen barriers; Herding; Sorbents; Wildlife deterrence	Wildlife deterrence	Wildlife deterrence
Habitat Areas	Booms (dispersion or cascading deflection); Wildlife deterrence	Wildlife deterrence	Wildlife deterrence	Wildlife deterrence
Breeding/nesting areas	Booms (dispersion or cascading deflection); Wildlife deterrence	Booms/skimmers; Wildlife deterrence	Wildlife deterrence	Wildlife deterrence
Finfishing and shellfishing areas	Booms (dispersion or cascading deflection)	Booms/skimmers; Herding; Sorbents; Vacuum pumping		
Habitat for endangered or threatened species	Booms (dispersion or cascading deflection); Wildlife deterrence	Booms/skimmers; Wildlife deterrence	Wildlife deterrence	Wildlife deterrence

TABLE IV-9
SURFACE WATER INTAKES IN THE PSEG NUCLEAR LLC STUDY AREA

ESA	***Distance from Artificial Island via water (miles)***	***Mechanism for Spill Reaching ESA; Type of Current***	***Priority***	***Notification***	***Protection Measures (See 4.3.3.1 for details)***
POTABLE					
None	N/A	N/A	N/A	N/A	N/A
INDUSTRIAL					
PSEG Nuclear LLC	0	Overland into Delaware River	1	N/A	Notification per Section 4.3.2. Place exclusion or deflection boom around the intake. Place sorbent boom behind the deflection boom if sorbent boom can be used. Otherwise use a second row of deflection booms. See above.

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA

ESA	*Distance from PSEG Nuclear LLC via water (miles) (negative numbers indicate upstream)*	*Mechanism for spill reaching ESA (type of current)*	*Staging Area*
Primary Watersheds			
Delaware River and Delaware Bay	**Dependent upon location on River or Bay**	**Overland discharge from site and downstream on Delaware River**	**As appropriate**
Priority 1 Areas			
Hope Creek (NJ)	**1.5**	**Downstream on Delaware River into Delaware Bay and upstream into Hope Creek**	**PSEG Nuclear LLC to Creek via Boat**
Blackbird Creek (DE)	**2.3**	**Across Delaware River and upstream on Blackbird Creek**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Creek via Boat**
Appoquinimink River (DE)	**2.3**	**Across Delaware River and upstream on Appoquinimink River**	**PSEG Nuclear LLC to River via Boat or Appoquinimink River Boat Ramp**
Priority 2 Areas			
Pea Patch Island	**-8.25**	**Upstream on Delaware River**	**PSEG Nuclear LLC to Pea Patch via Boat**
Salem River (NJ)	**-7.9**	**Upstream on Delaware River and upstream into Salem River**	**Salem River**
Straight Ditch (NJ)	**-3.9**	**Upstream on Delaware River and upstream into Straight Ditch**	**PSEG Nuclear LLC to Ditch via Boat**
Reedy Island	**-3.5**	**Upstream on Delaware River**	**PSEG Nuclear LLC to Reedy via Boat**
Black Ditch (NJ)	**-3.4**	**Upstream on Delaware River and upstream into Black Ditch**	**PSEG Nuclear LLC to Ditch via Boat**
Augustine Creek (DE)	**-3.25**	**Across and slightly upstream on Delaware River and upstream on Augustine Creek**	**PSEG Nuclear LLC or Augustine Beach Boat Ramp to Creek via Boat**
Alloways Creek (NJ)	**-2.5**	**Upstream on Delaware River and upstream on Alloways Creek**	**PSEG Nuclear LLC to Creek via Boat**

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA

ESA	*Distance from PSEG Nuclear LLC via water (miles)* *(negative numbers indicate upstream)*	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Angle Rod Creek (DE)	**2.3**	**Downstream on Delaware River into Delaware Bay and upstream into Angle Rod Creek**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Creek via Boat**
Fishing Creek (NJ)	**2.3**	**Downstream on Delaware River into Delaware Bay and upstream into Fishing Creek**	**PSEG Nuclear LLC to Creek via Boat**
Bucks Ditch (NJ)	**2.3**	**Downstream on Delaware River into Delaware Bay, upstream on Fishing Creek, and upstream into Bucks Ditch**	**PSEG Nuclear LLC to Ditch via Boat**
Skunk Hill Ditch (DE)	**2.4**	**Across Delaware River, upstream on Appoquinimink River and upstream on Skunk Hill Ditch**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Ditch via Boat**
Peach House Ditch (DE)	**2.5**	**Downstream on Delaware River into Delaware Bay and upstream on Peach House Ditch**	**PSEG Nuclear LLC or Cedar Swamp Boat Ramp to Ditch via Boat**
Lower Break (DE)	**2.75**	**Across Delaware River and upstream on Lower Break**	**PSEG Nuclear LLC, Appoquinimink River Boat Ramp, or Augustine Beach Boat Ramp to Break via Boat**
Rays Ditch (DE)	**2.8**	**Downstream on Delaware River into Delaware Bay, upstream into Angle Rod Creek, and upstream into Rays Ditch**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Ditch via Boat**
The Big Ditch (DE)	**2.8**	**Across Delaware River, upstream on Blackbird Creek and upstream into The Big Ditch**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Ditch via Boat**
White Oak Ditch (DE)	**2.9**	**Downstream on Delaware River into Delaware Bay, upstream into Angle Rod Creek, upstream on Rays Ditch, and upstream into White Oak Ditch**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Ditch via Boat**
Upper Break (DE)	**2.9**	**Across Delaware River and upstream on Upper Break**	**PSEG Nuclear LLC, Appoquinimink River Boat Ramp, or Augustine Beach Boat Ramp to Break via Boat**

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA

ESA	*Distance from PSEG Nuclear LLC via water (miles)* *(negative numbers indicate upstream)*	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Silver Run (DE)	**3.0**	**Across and slightly upstream on Delaware River and upstream on Silver Run**	**PSEG Nuclear LLC or Augustine Beach Boat Ramp to Run via Boat**
Middle Drain (DE)	**3.25**	**Downstream on Delaware River into Delaware Bay and upstream on Middle Drain**	**PSEG Nuclear LLC or Cedar Swamp Boat Ramp to Drain via Boat**
Cat Gut (NJ)	**3.4**	**Downstream on Delaware River into Delaware Bay, upstream on Fishing Creek, upstream on Bucks Ditch, and downstream into Cat Gut**	**PSEG Nuclear LLC to Gut via Boat**
River Shore Ditch (DE)	**3.45**	**Downstream on Delaware River into Delaware Bay, upstream on Middle Drain, and upstream into River Shore Ditch**	**PSEG Nuclear LLC or Cedar Swamp Boat Ramp to Ditch via Boat**
Mill Creek (DE)	**3.5**	**Across Delaware River, upstream on Blackbird Creek and upstream on Mill Creek**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Creek via Boat**
Hangmans Run (DE)	**3.7**	**Across Delaware River, upstream on Appoquinimink River and upstream on Hangmans Run**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Run via Boat**
Pattys Fork (NJ)	**3.8**	**Downstream on Delaware River into Delaware Bay, upstream on Fishing Creek, and upstream into Pattys Fork**	**PSEG Nuclear LLC to Fork via Boat**
Solters Creek (NJ)	**4.0**	**Downstream on Delaware River into Delaware Bay, upstream on Hope Creek, and upstream into Solters Creek**	**PSEG Nuclear LLC to Creek via Boat**
Fishing Creek (DE)	**4.5**	**Across Delaware River, upstream on Blackbird Creek and upstream on Fishing Creek**	**PSEG Nuclear LLC or Appoquinimink River Boat Ramp to Creek via Boat**
Mad Horse Creek (NJ)	**4.7**	**Downstream on Delaware River into Delaware Bay and upstream on Mad Horse Creek**	**Mad Horse Creek**

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA			
ESA	*Distance from PSEG Nuclear LLC via water (miles)* *(negative numbers indicate upstream)*	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Cedar Swamp (DE)	**4.8**	**Downstream on Delaware River into Delaware Bay and upstream into Cedar Swamp**	**PSEG Nuclear LLC via Boat or Cedar Swamp Boat Ramp**
Lower Deep Creek (NJ)	**5.5**	**Downstream on Delaware River into Delaware Bay and upstream on Lower Deep Creek**	**PSEG Nuclear LLC, Cohansey River or Mad Horse Creek Boat Ramps to Creek via Boat**
Cherry Tree Creek (NJ)	**5.9**	**Downstream on Delaware River into Delaware Bay and upstream on Cherry Tree Creek**	**PSEG Nuclear LLC or Cohansey River Boat Ramp to Creek via Boat**
Smyrna River (DE)	**6.5**	**Downstream on Delaware River and upstream on Smyrna River**	**PSEG Nuclear LLC via Boat or Smyrna River Boat Ramp**
Stow Creek (NJ)	**7.6**	**Downstream on Delaware River into Delaware Bay and upstream on Stow Creek**	**Stow Creek**
Phillips Creek (NJ)	**8.0**	**Downstream on Delaware River into Delaware Bay, upstream on Stow Creek, and upstream on Phillips Creek**	**Stow Creek Boat Ramp to Creek via Boat**
Broadway Meadows (DE)	**8.0**	**Downstream on Delaware River into Delaware Bay and upstream into Broadway Meadows**	**PSEG Nuclear LLC or Woodland Beach Wildlife Boat Ramp to Meadows via Boat**
Duck Creek (DE)	**9.4**	**Downstream on Delaware River into Delaware Bay and upstream on Duck Creek**	**PSEG Nuclear LLC or Woodland Beach Wildlife Boat Ramp to Creek via Boat**
Cohansey River (NJ)	**12.6**	**Downstream on Delaware River into Delaware Bay and upstream on Cohansey River**	**Cohansey River Boat Ramp**
Priority 3 Areas			
Salem Canal (NJ)	**-13.9**	**Upstream on Delaware River and upstream on Salem Canal**	**Salem Canal**

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA			
ESA	*Distance from PSEG Nuclear LLC via water (miles)* *(negative numbers indicate upstream)*	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Kates Creek (NJ)	**-11.8**	**Upstream on Delaware River, upstream on Salem River, upstream into Mannington Meadows, and upstream into Kates Creek**	**Kates Creek**
Deep Run (NJ)	**-10.0**	**Upstream on Delaware River, upstream on Alloways Creek, and upstream into Deep Run**	**Deep Run**
Fenwick Creek (NJ)	**-9.8**	**Upstream on Delaware River, upstream on Salem River, and upstream on Fenwick Creek**	**Fenwick Creek**
Mannington Creek and Meadows (NJ)	**-9.3**	**Upstream on Delaware River, upstream on Salem River, and upstream into Mannington Creek and Meadows**	**Mannington Creek and Meadows**
Dragon Creek (DE)	**-9.3**	**Upstream on Delaware River**	**PSEG Nuclear LLC or Barnard's Delaware City Marina**
Delaware Branch Channel (DE)	**-8.7**	**Upstream on Delaware River and upstream on Delaware Branch Channel**	**PSEG Nuclear LLC or Barnard's Delaware City Marina to the Channel via Boat**
Mill Creek (N)/ Goose Pond (NJ)	**-8.25**	**Upstream on Delaware River and upstream into Mill Creek/Goose Pond**	**PSEG Nuclear LLC to Creek via Boat**
Supawna Meadows (NJ)	**-8.1**	**Upstream on Delaware River, upstream on Salem River and into Supawna Meadows**	**Supawna Meadows**
Baldridge Creek (NJ)	**-7.9**	**Upstream on Delaware River and upstream into Baldridge Creek**	**Baldridge Creek**
Chesapeake and Delaware Canal (DE)	**-7.1**	**Upstream on Delaware River and upstream into Chesapeake and Delaware Canal**	**PSEG Nuclear LLC via Boat or Barnard's Delaware City Marina to the Canal via Boat**
St. Georges Creek (DE)	**-5.8**	**Upstream on Delaware River and upstream on St. Georges Creek**	**PSEG Nuclear LLC or Augustine Beach Boat Ramp to Creek via Boat**

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA

ESA	*Distance from PSEG Nuclear LLC via water (miles)* *(negative numbers indicate upstream)*	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Mill Creek (S) (NJ)	**-4.65**	**Upstream on Delaware River and upstream on Mill Creek**	**PSEG Nuclear LLC to Creek via Boat**
Little Creek (NJ)	**6.2**	**Downstream on Delaware River into Delaware Bay, upstream on Mad Horse Creek, and upstream on Little Creek**	**Mad Horse Creek Boat Ramp to Creek via Boat**
Upper Deep Creek (NJ)	**6.4**	**Downstream on Delaware River into Delaware Bay, upstream on Mad Horse Creek, and upstream on Upper Deep Creek**	**Mad Horse Creek Boat Ramp to Creek via Boat**
Malapartis Creek (NJ)	**6.8**	**Downstream on Delaware River into Delaware Bay, upstream on Mad Horse Creek, and upstream on Malapartis Creek**	**Mad Horse Creek Boat Ramp**
Turners Fork (NJ)	**7.2**	**Downstream on Delaware River into Delaware Bay, upstream on Mad Horse Creek, and upstream into Turners Fork**	**Mad Horse Creek Boat launch to Fork via Boat**
Silver Lake Fork (NJ)	**7.5**	**Downstream on Delaware River into Delaware Bay, upstream on Mad Horse Creek, and upstream into Silver Lake Fork**	**Mad Horse Creek Boat launch to Fork via Boat**
Straight Ditch (DE)	**7.6**	**Downstream on Delaware River, upstream on Smyrna River, and upstream on Straight Ditch**	**PSEG Nuclear LLC or Smyrna River Boat Ramp to Ditch via Boat**
Shorts Landing (DE)	**8.1**	**Downstream on Delaware River, upstream on Smyrna River and into Shorts Landing**	**PSEG Nuclear LLC or Smyrna River Boat Ramp to Landing via Boat**
Silver Lake Meadow (NJ)	**8.8**	**Downstream on Delaware River into Delaware Bay, upstream on Mad Horse Creek, and upstream into Silver Lake Meadow**	**Mad Horse Creek Boat Ramp to Meadow via Boat**
Sawmill Branch (DE)	**9.8**	**Downstream on Delaware River, upstream on Smyrna River, and upstream on Sawmill Branch**	**PSEG Nuclear LLC or Smyrna River Boat Ramp to Branch via Boat**

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA

ESA	*Distance from PSEG Nuclear LLC via water (miles)* *(negative numbers indicate upstream)*	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Corks Point Ditch (DE)	**10.55**	**Downstream on Delaware River, upstream on Smyrna River, and upstream on Corks Point Ditch**	**PSEG Nuclear LLC or Smyrna River Boat Ramp to Ditch via Boat**
Raccoon Ditch (NJ)	**11.0**	**Downstream on Delaware River into Delaware Bay, upstream on Stow Creek, and upstream on Raccoon Ditch**	**Stow Creek Boat Ramp to Ditch via Boat**
New Port Meadows (NJ)	**11.4**	**Downstream on Delaware River into Delaware Bay, upstream on Stow Creek, and upstream into New Port Meadows**	**Stow Creek Boat Ramp to Meadows via Boat**
Drumbo Creek (NJ)	**12.4**	**Downstream on Delaware River into Delaware Bay and upstream into Drumbo Creek**	**PSEG Nuclear LLC or Cohansey River Boat Ramp to Creek via Boat**
Middle Marsh and Division Creek (NJ)	**13.0**	**Downstream on Delaware River into Delaware Bay and upstream into Middle Marsh and Division Creek**	**PSEG Nuclear LLC or Cohansey River Boat Ramp to Creek via Boat**
Cabin Creek (NJ)	**13.0**	**Downstream on Delaware River into Delaware Bay, upstream on Cohansey River, and upstream on Cabin Creek**	**Cohansey River Boat Ramp to Creek via Boat**
Ayres Creek (NJ)	**13.4**	**Downstream on Delaware River into Delaware Bay, upstream on Cohansey River, and upstream on Ayres Creek**	**Cohansey River Boat Ramp to Creek via Boat**
Exposed tidal flats	**throughout Delaware River and Bay**	**Delaware Bay, downstream and upstream on Delaware River**	**As appropriate**
Gravel/riprap beaches	**throughout Delaware River and Bay**	**Delaware Bay, downstream and upstream on Delaware River**	**As appropriate**
Priority 4 Areas			

TABLE IV-10ESA CONCENTRATION AREAS IN THE PSEG NUCLEAR LLC STUDY AREA			
ESA	*Distance from PSEG Nuclear LLC via water (miles)* ***(negative numbers indicate upstream)***	*Mechanism for spill reaching ESA* *(type of current)*	*Staging Area*
Red Lion Creek (DE)	**-11**	**Upstream on Delaware River and upstream on Red Lion Creek**	**PSEG Nuclear LLC or Barnard's Delaware City Marina**
Keasbeys Creek (NJ)	**-10.9**	**Upstream on Delaware River, upstream on Salem River, upstream on Fenwick Creek, and upstream into Keasbeys Creek**	**Keasbeys Creek**
Cedar Creek (DE)	**-10**	**Upstream on Delaware River and upstream on Cedar Creek**	**PSEG Nuclear LLC or Barnard's Delaware City Marina**
Prime Fishing Areas, throughout Delaware Bay	**4-15**	**Upstream and downstream on Delaware River and into Delaware Bay**	**As appropriate**
Shellfish harvesting waters, throughout Delaware Bay	**4-15**	**Upstream and downstream on Delaware River and into Delaware Bay**	**As appropriate**
Medium to coarse sand beaches	**throughout Delaware River and Bay**	**Delaware Bay, downstream and upstream on Delaware River**	**As appropriate**
Mixed sand and gravel beaches	**throughout Delaware River and Bay**	**Delaware Bay, downstream and upstream on Delaware River**	**As appropriate**

TABLE IV-11
STAGING AREAS FOR PROTECTION IN THE PSEG NUCLEAR LLC STUDY AREA

Staging Area or Boat Launching Area	*Number indicated on ESAPP Staging Map (boat ramps only)*	*Point from which to deploy equipment*	*Directions (from PSEG Nuclear LLC)*
New Jersey			
Deep Run	N/A	Off Quinton Remsterville Road	Take Alloway Creek Neck Road to Mill Street and turn left. Turn right onto Hancock Bridge Quinton Road. Go to end and turn right. Take a left onto Quinton Remsterville Road. Then turn left onto unimproved road leading to Deep Run.
Salem River	N/A	Sinnickson Landing	Take Alloway Creek Neck Road to Mill Street and turn left. Turn left at first intersection with main road (i.e., not an unimproved road). At Amwellbury Road turn right and go to end. Sinnickson Landing is to the left.
Baldridge Creek	N/A	Sinnickson Landing	Take Alloway Creek Neck Road to Mill Street and turn left. Turn left at first intersection with main road (i.e., not an unimproved road). At Amwellbury Road turn right and go to end. Sinnickson Landing is to the left.
Supawna Meadows	N/A	Sinnickson Landing	Take Alloway Creek Neck Road to Mill Street and turn left. Turn left at first intersection with main road (i.e., not an unimproved road). At Amwellbury Road turn right and go to end. Sinnickson Landing is to the left.
Fenwick Creek	N/A	Fenwick Creek	Take Alloway Creek Neck Road to Mill Street and turn left. Go to end and turn left onto Quaker Neck Road. Turn right at second intersection and go to creek.
Keasbeys Creek	N/A	End of Mill Street	Take Alloway Creek Neck Road to Mill Street and turn left. Go to the end.
Mannington Creek and Meadows	N/A	Sinnickson Landing	Take Alloway Creek Neck Road to Mill Street and turn left. Turn left at first intersection with main road (i.e., not an unimproved road). At Amwellbury Road turn right and go to end. Sinnickson Landing is to the left.
Kates Creek	N/A	Sinnickson Landing	Take Alloway Creek Neck Road to Mill Street and turn left. Turn left at first intersection with main road (i.e., not an unimproved road). At Amwellbury Road turn right and go to end. Sinnickson Landing is to the left.
Salem Canal	N/A	End of Salem Canal, off Broadway	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past Delaware Memorial Bridge, and over the Salem Canal. Make first left after the Canal. Take to end of canal.

TABLE IV-11
STAGING AREAS FOR PROTECTION IN THE PSEG NUCLEAR LLC STUDY AREA

Staging Area or Boat Launching Area	*Number indicated on ESAPP Staging Map (boat ramps only)*	*Point from which to deploy equipment*	*Directions (from PSEG Nuclear LLC)*
Lower Alloways Creek Boat Ramp	3	Boat Ramp	Take Alloway Creek Neck Road about 7 miles from PSEG Nuclear LLC. Make left at bridge. Go 1/2 mile; LAC boat ramp is on the right.
Ft. Mott State Park	5	Boat Ramp	Take Alloway Creek Neck Road to Salem Hancocks Bridge. Go to end and turn left onto Quinton Road, which turns into Broadway Road. Turn left at Lighthouse Road and go to the end and into the Park.
Dix Wildlife Management Area	6	Boat Ramp	Take Alloway Creek Neck Road to Harmersville Canton Road and follow to Landing Road and turn left. Turns into Pony Road after Buckhorn Road intersection. Then Pony turns into Roadstown Road. Follow over the Cohansey River and turn right onto Back Neck Road. Take to end and then look for Dix.
Hancock's Harbor Marina	7	Ragged Island, Boat Ramp	Take Alloway Creek Neck Road to Harmersville Canton Road and follow to the end. Turn right onto Bacons Neck Road. At end turns into Tindall Island Road. Follow to the Cohansey River and the Boat Ramp.
Maskells Mill Pond Wildlife Management Area	8	Boat Ramp	Take Alloway Creek Neck Road to Hancock Bridge Road heading south. This road turns into Canton Road. Follow it, and after crossing Raccoon Ditch, take the first right turn and go to the end of the road and the Stow Creek Boat Ramp.
Mad Horse Creek State Wildlife Management Area	11	Pine Island, Boat Ramp	Take Hancock Bridge Road to Canton. Take right at Canton. Take first left at Stow Neck Road and go to end and Pine Island Ramp.Delaware
Augustine Beach Access Area	1	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Rt. 9 turns into Delaware City Port Penn Road, and then Saint Augustine Road after passing through Port Penn. Turn left onto road leading to Augustine Beach and Boat Ramp.

TABLE IV-11
STAGING AREAS FOR PROTECTION IN THE PSEG NUCLEAR LLC STUDY AREA

Staging Area or Boat Launching Area	*Number indicated on ESAPP Staging Map (boat ramps only)*	*Point from which to deploy equipment*	*Directions (from PSEG Nuclear LLC)*
Woodland Beach State Wildlife Area	2	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Take Rt. 9 into Woodland Beach. Pass the Woodland Beach Wildlife area on left and then turn left. Take to the beach and Boat Ramp.
Augustine State Wildlife Management Area	4	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Rt. 9 turns into Delaware City Port Penn Road. Follow signs to Wildlife Area and Boat Ramp.
Port Penn	9	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Rt. 9 turns into Delaware City Port Penn Road. Follow signs to Port Penn.
Appoquinimink Creek Access Area	10	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Rt. 9 becomes Silver Run Road. Boat Ramp is located where Silver Run Road crosses the Appoquinimink River.
Bombay Hook National Wildlife Refuge	12	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Take Rt. 9 past the Woodland Beach Wildlife area on left and follow signs to Bombay Hook.
Summit North Full Service Marina	13	Marina	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Follow Rt. 9 to Rt. 13 and Rt. 301 and take across Canal to Marina.

TABLE IV-11
STAGING AREAS FOR PROTECTION IN THE PSEG NUCLEAR LLC STUDY AREA

Staging Area or Boat Launching Area	*Number indicated on ESAPP Staging Map (boat ramps only)*	*Point from which to deploy equipment*	*Directions (from PSEG Nuclear LLC)*
Delaware City Access Area	14	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Follow Rt. 9 into Delaware City (5th Street). Cross Branch Channel, turn left and follow to access area.
Barnards Delaware City Marina	15	Marina	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Follow Rt. 9 into Delaware City. Cross Dragon Creek and turn right. Go to marina.
Smyrna River	16	Flemings Landing, Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Follow Rt. 9 into Smyrna. Road name changes to Flemings Landing Road. Boat Ramp is where road crosses Smyrna River.
Cedar Swamp	17	Boat Ramp	Take Alloway Creek Neck Road to Mill Street and turn left. Go to Salem Road and turn left. Follow Salem Road through Pennsville (name of road changes to Broadway). Take Broadway past to Delaware Memorial Bridge and cross it. Then take Rt. 9 (River Road) South. Follow Rt. 9 south through Taylors Bridge. Turn left onto Thoroughfare Neck Road. Go to end and turn left onto Collins Road and follow to Boat Ramp.

TELEPHONE NUMBERS

TELEPHONE NUMBERS

FACILITY CONTACTS

TITLE	TELEPHONE NOS.	PAGER NOS.
Operations Superintendent	(856) 339-3333	**EMERGENCY REPORTING**
Salem Generating Station	(856) 339-5200	
Hope Creek Generating Station	(856) 339-3027	
Discharge Response Coordinator (DRC)/Qualified Individual (QI) (Nuclear Fire Protection Supervisors)	(856) 339-2800 (856) 339-2807 (Fax)	
John Carlin Superintendent - Fire Prevention	(856) 339-2814	(877) 528-1311
Fire Department Office / DRC/QI Office	(856) 339-2800 (856) 339-2807 (Fax)	
Richard Black Salem Health and Safety Administrator	(856) 339-2816	(877) 524-9083
Douglas Pendleton Hope Creek Health and Safety Administrator	(856) 339-1794	(877) 479-4943

PUBLIC INFORMATION OFFICERS

24-Hour	(856) 339-1111	
Joseph M. (Skip) Sindoni	(856) 339-1002 (856) 478-4364 (Home)	(877) 722-7510

ENVIRONMENTAL COORDINATORS

TITLE	TELEPHONE NOS.	PAGER NOS.
Gregory Suey Salem Chemistry, Radwaste, and Environmental Manager	(856) 399-5066	(877) 324-9642
Richard Labott Hope Creek Chemistry, Radwaste, and Environmental Manager	(856) 339-1094	(866) 213-3840
Clifton D. Gibson Salem Chemistry, Radwaste, and Environmental Supervisor	(856) 339-2686	(877) 890-1927
Erin West Hope Creek Chemistry, Radwaste, and Environmental Supervisor	(856) 339-5411	(877) 383-5301

DISCHARGE RESPONSE COORDINATORS (DRC)/ QUALIFIED INDIVIDUALS (QI)

TITLE	TELEPHONE NOS.	PAGER NOS.
Mark Bisceglie Nuclear Fire Protection Supervisor	(856) 339-2803	(888) 764-4450
Matthew Cardile Nuclear Fire Protection Supervisor	(856) 339-2800	
Robert B. Chambers Nuclear Fire Protection Supervisor	(856) 339-2811	(877) 497-1603
Michael R. Cocking, Jr. Nuclear Fire Protection Supervisor	(856) 339-5030	
Joseph S. Gebely Nuclear Fire Protection Supervisor	(856) 339-2803	(877) 531-6778
Kenneth A. Powell Nuclear Fire Protection Supervisor	(856) 339-2800	(877) 495-6440
James Prisco Nuclear Fire Protection Supervisor	(856) 339-2800	

GOVERNMENT AGENCIES

AGENCY	**TELEPHONE NO.**
FEDERAL	
National Response Center	1-800-424-8802 (24 hrs) (202) 267-2675
Chemtrec	1-800-424-9300
U.S. EPA	1-800-424-8802 (732) 548-8730
U.S. Coast Guard	1-800-424-8802
COTP Philadelphia/Marine Safety Office	(215) 271-4807
New Jersey Department of Environmental Protection (NJDEP)	
Hotline1-877-WARNDEP	1-877-927-6337
State Police	(609) 882-2000 (856) 769-2959 (Off Hours)
COUNTY	
Salem County Office of Emergency Management	(856) 769-2900 (856) 769-2959 (Off Hours)
LOCAL	
LACT Police Dept.	(856) 935-7300
Fire (Hancocks Bridge)	(856) 935-4505

GOVERNMENT AGENCIES (Cont)

AGENCY	TELEPHONE NO.
LOCAL	
Fire (Canton)	(856) 935-4505
Ambulance [(856) 935-3241]	(856) 935-4505
LACT Office of Emergency Management	(856) 935-7300
Salem County Office of Emergency Management	(856) 769-2900 (856) 769-2959 (Off Hours)
Department of Health	(856) 935-7510 ext. 8448 (M-F) (856) 769-2959 (Off Hours)
The Memorial Hospital of Salem County	(856) 935-1000

DISCHARGE RESPONSE/CLEANUP CONTRACTORS

Discharge Response Contractors/Oil Spill Response Organizations

COMPANY	TELEPHONE NO.
Delaware Bay and River Cooperative (DBRC) Lewes, Delaware	(610) 856-2830 (302) 645-7861 (24 hrs) (302) 462-0191 (Mobile)
Clean Harbors Environmental Services, Inc. Deptford, NJ	(732) 248-1997 (Edison) (800) 544-3128 (24hrs) (856) 589-5000 (Deptford) (800) 645-8265 (Deptford)
BECA Environmental Consultants, Inc. (Non Level "E" OSRO) Seabrook, NJ	(877) 767-8276 (24 hrs) (856) 358-4771 (856) 358-6376 (Fax) (609) 381-0040 (Mobile)

DISCHARGE RESPONSE/CLEANUP CONTRACTORS (Cont)

COMPANY	**TELEPHONE NO.**

Discharge Response Contractors/Oil Spill Response Organizations

Tri-State Bird Rescue and Research Newark, DE	(800) 710-0695 (24 hr pager) (302) 737-9543 (9-5, 7 days)
Marine Mammal Stranding Center Brigantine, NJ	(609) 266-0538
Clean Venture, Inc. Camden, NJ	(908) 354-0210 (856) 863-8778
Veolia Environmental Services	(800) 431-2387 (412) 809-6756

MAPS

LEGEND:

- OTHER BARREN OR ALTERED LANDS
- INDUSTRIAL/COMMERCIAL COMPLEX
- RECREATIONAL LAND AND PARKS
- RIVERS
- SITE BOUNDARY
- LOT LINES
- UTILITY CORRIDOR
- STORM DRAINAGE SYSTEMS
- PRODUCTION WELLS
- OBSERVATION WELLS
- 100 YEAR FLOOD LINE

FRESHWATER WETLANDS TYPES:

- MODL
- MODD
- POWHh
- POWHx
- PEMIB
- PEMIFh
- PEMIE

REFERENCE:

1. FRESHWATER WETLANDS WERE DIGITIZED FROM STATE OF NEW JERSEY DEPT. OF ENVIRONMENTAL PROTECTION FRESHWATER WETLANDS MAP NO. 149-2 (TAYLORS BRIDGE NE – TAYLORS BRIDGE)
2. SITE PLAN, SALEM & HOPE CREEK GENERATING STATION (3 SHEETS).
3. DPRP EQUIPMENT INVENTORY, SALEM & HOPE CREEK GENERATING STATION (1 SHEET).

NOTES:

1. CATEGORIES OF LAND USE AT P.S.E.&G. NBU
   - i. URBAN LAND:
     - (1) RESIDENTIAL – NONE
     - (2) TRANSPORTATION/UTILITIES – NONE
       COMMUNICATION – NONE
     - (3) INDUSTRIAL AND COMMERCIAL COMPLEXES – NONE
     - (4) RECREATIONAL LAND AND PARKS – NONE
     - (5) SCHOOLS – NONE
     - (6) HOSPITAL AND NURSING CARE FACILITIES – NONE
   - ii. WATER:
     - (1) RIVER CHANNELS – DELAWARE RIVER
     - (2) LAKES AND PONDS – NONE
     - (3) RESERVOIRS – NONE
     - (4) BAYS AND ESTUARIES – DELAWARE BAY AND ESTUARIES
     - (5) CRANBERRY BOGS – NONE
   - iii. WETLANDS. – SEE FRESHWATER WETLANDS TYPES
   - iv. AGRICULTURAL LAND: – NONE
   - v. BARREN LANDS:
     - (1) BEACHES – NONE
     - (2) EXTRACTIVE MINING – NONE
     - (3) OTHER BARREN OR ALTERED LANDS – SEE LEGEND
   - vi. FOREST:
     - (1) DECIDUOUS – NONE
     - (2) CONIFEROUS – NONE
     - (3) MIXED – NONE
     - (4) BRUSHLAND AND SHRUBLAND – NONE
2. P.S.E.&G. NBU STORM DRAINAGE SYSTEM CONSISTS OF CATCH BASINS, STORM WATER INLETS, BELOW GRADE PIPING AND DRAINAGE DITCHES THAT INTERCEPT AND CONVEY THE RUNOFF TO THE DELAWARE RIVER.
3. AT PRESENT, THERE ARE A NUMBER OF PRODUCTION WELLS (PW) AND OBSERVATION WELLS (OW) AT P.S.E.&G. NBU; THERE LOCATIONS ARE DELINEATED (SEE LEGEND) ON THIS MAP.
4. THERE ARE NO WELLHEAD PROTECTION AREAS DELINEATED BY NJDEP WITHIN 1000 FEET FROM THE P.S.E.&G. NBU FACILITY BOUNDARY.

KEY
STORM DRAINAGE SYSTEMS

HOPE CREEK:
- NORTH YARD DRAIN
- SOUTH YARD DRAIN
- PERIMETER DITCH DRAIN
- COOLING TOWER DRAIN

SALEM:
- NORTH YARD DRAIN
- WEST YARD DRAIN
- SOUTH YARD DRAIN
- EAST YARD DRAIN
- HELICOPTER PAD DRAIN

NO.	DESCRIPTION	DWN	EXD	APD	DATE
3					
2					
1	Added Dry Cask Storage Area, Demin. Water Plant and Tritium Reclamation Plant.	TPW			02-09-05

REVISION

PSEG Services Corporation
SURVEYS & MAPPING

CORPORATE HEADQUARTERS
80 Park Plaza
Newark, N.J. 07102-4194
Phone : (973) 430-7000
Fax : (973) 643-7350

PSEG SERVICES CORPORATION

I HEREBY CERTIFY THAT THIS PLAT HAS BEEN PREPARED UNDER MY RESPONSIBLE CHARGE AND THAT ALL DIMENSIONS AND INFORMATION ARE CORRECT AS TO THE DETAIL SHOWN

W A R N I N G

DAVID C. COLEMAN

N.J. PROFESSIONAL LAND SURVEYOR No. 35826
COA No. 24GA28078600

DPRP DRAINAGE and LAND USE MAP

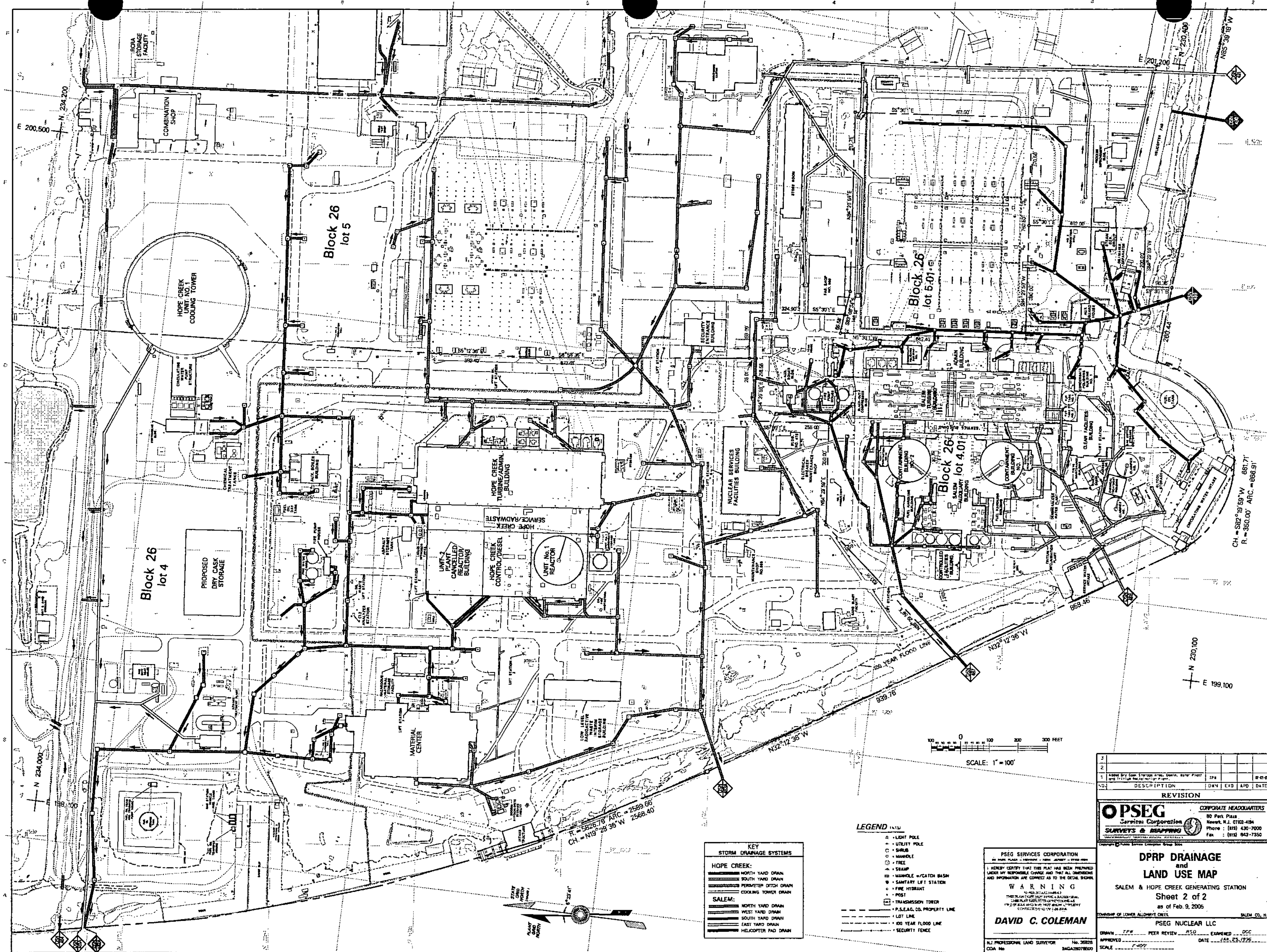
SALEM & HOPE CREEK GENERATING STATION

Sheet 1 of 2

as of Feb. 9, 2005

PSEG NUCLEAR LLC

DRAWN TPW PEER REVIEW RSO EXAMINED DCC
APPROVED DATE JAN. 25, 1996
SCALE 1"=300'



NO.	DESCRIPTION	DWN	EXD	APD	DATE
3					
2					
1	Added Dry Cask Storage Area, Demin. Water Plant and Tritium Reclamation Plant.	TPW			02-15-05

REVISION

PSEG Services Corporation
SURVEYS & MAPPING
CORPORATE HEADQUARTERS
80 Park Plaza
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DPRP DRAINAGE and LAND USE MAP

SALEM & HOPE CREEK GENERATING STATION

Sheet 2 of 2

as of Feb. 9, 2005

TOWNSHIP OF LOWER ALLOWAYS CREEK — SALEM CO., N.J.

PSEG NUCLEAR LLC

DRAWN TPW — PEER REVIEW RSO — EXAMINED DCC
APPROVED — DATE JAN. 25, 1996
SCALE 1"=100'

PSEG SERVICES CORPORATION

I HEREBY CERTIFY THAT THIS PLAT HAS BEEN PREPARED UNDER MY RESPONSIBLE CHARGE AND THAT ALL DIMENSIONS AND INFORMATION ARE CORRECT AS TO THE DETAIL SHOWN.

WARNING

DAVID C. COLEMAN

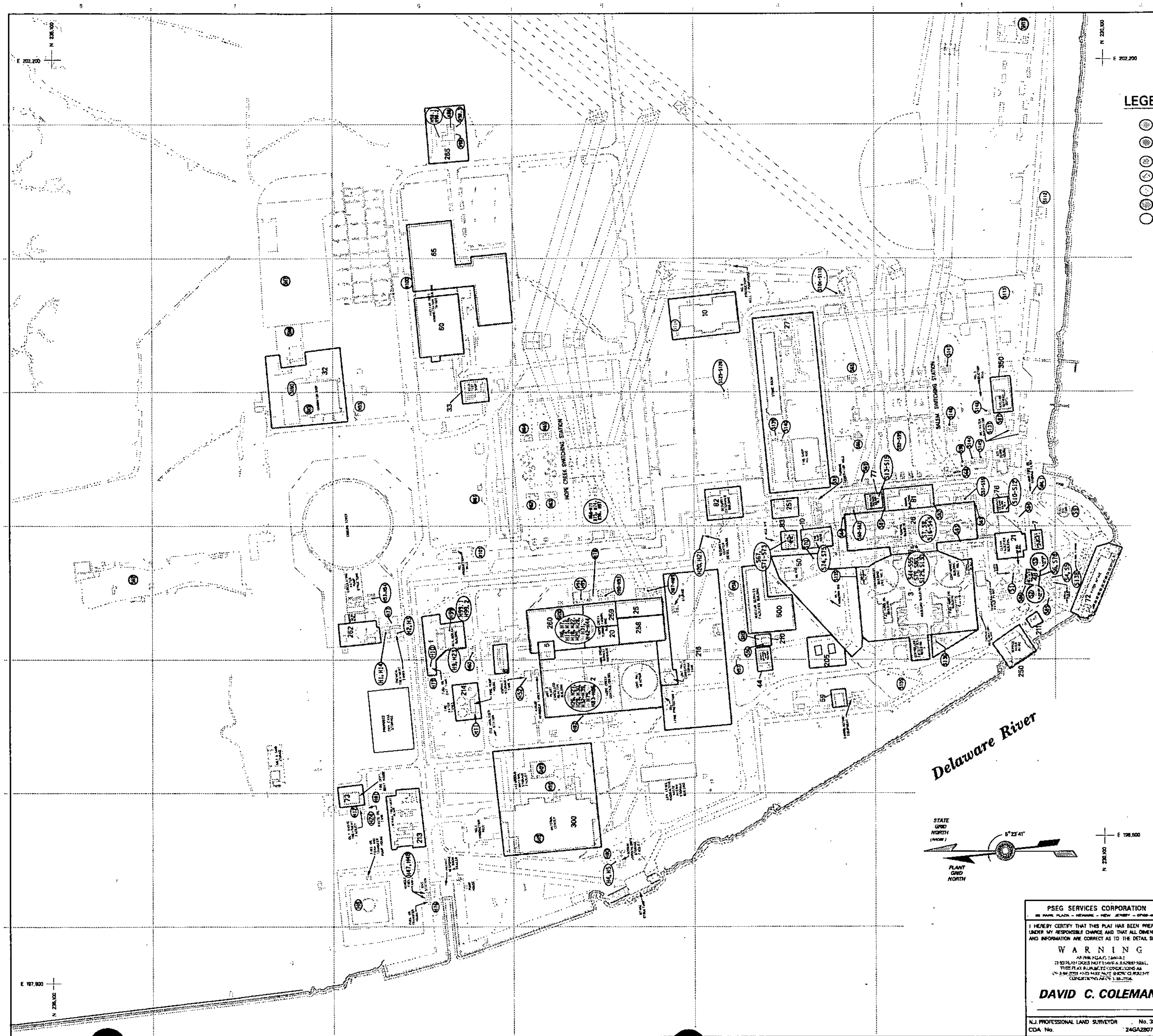
N.J. PROFESSIONAL LAND SURVEYOR No. 35828
COA No 24GA28078600

KEY
STORM DRAINAGE SYSTEMS

HOPE CREEK:
- NORTH YARD DRAIN
- SOUTH YARD DRAIN
- PERIMETER DITCH DRAIN
- COOLING TOWER DRAIN

SALEM:
- NORTH YARD DRAIN
- WEST YARD DRAIN
- SOUTH YARD DRAIN
- EAST YARD DRAIN
- HELICOPTER PAD DRAIN

LEGEND (N.T.S.)
- LIGHT POLE
- UTILITY POLE
- SHRUB
- MANHOLE
- TREE
- SWAMP
- MANHOLE w/CATCH BASIN
- SANITARY LIFT STATION
- FIRE HYDRANT
- POST
- TRANSMISSION TOWER
- P.S.E.&G. CO. PROPERTY LINE
- LOT LINE
- 100 YEAR FLOOD LINE
- SECURITY FENCE



LEGEND:

- ABOVE GROUND STORAGE TANKS
- STORAGE TANKS/PROCESS TANKS IN PROCESS BUILDINGS OR PROCESS AREAS
- TRANSFER AREAS
- PROCESS TANKS
- SUBSTATIONS/TRANSFORMERS/CIRCUIT BREAKERS
- CONTAINERS/DRUMS STORAGE AREAS
- UNDERGROUND STORAGE TANKS/TRANSFER AREA

NOTES:

1. WORK THIS DRAWING WITH SITE PLAN– SALEM AND HOPE CREEK GENERATING STATION, SHEETS 1,2 & 3.
2. WORK THIS DRAWING WITH DPRP DRAINAGE AND LAND USE MAP, SHEETS 1 & 2.

REFERENCES:

1. SEE DPRP PLAN PART II TABLES II-1A, 1B & 1C FOR A LIST OF STATION FACILITIES, TABLE II-1D FOR SMALL QUANTITY CHEMICAL STORAGE AREAS (COMMUNITY-RIGHT-TO-KNOW) AND TABLES II-2A & 2B FOR TANK TRUCK UNLOADING AREAS NOTED ON THIS PLAN.
2. EQUIPMENT INVENTORY NUMBERS ARE PREFIXED WITH 'S' FOR SALEM STATION, 'H' FOR HOPE CREEK STATION AND 'SH' FOR COMMON ITEMS.
3. REFERENCE DRAWINGS:
   a) SITE PLAN, SALEM & HOPE CREEK GENERATING STATION (3 SHEETS).
   b) DPRP DRAINAGE AND LAND USE MAP, SALEM & HOPE CREEK GENERATING STATION (2 SHEETS).

SCALE: 1" = 150'

No.	DESCRIPTION	DWN	EXD	APD	DATE
5	General revision	TPW			2/9/05
4	Relocate Tanks H9 & H21(Credit Remove Bldg. 30,000 tank S144 (purple) and tank H109 (purple)	NJ			1/9/02
3	Added S55 (pink), S56 (purple) area B-4 and S67 (pink) area E-1.	TPW			1/15/99
2	Removed Jet Fuel Storage Tank, added Ethylene Glycol Tank and relocated RCRA Storage Facility.	TPW			7/12/96
1	Added Production Well No.5, removed trailers and sheds from areas F-4, C-3 and D-3. Moved items S135, S174 and SH25.	TPW			5/1/95

REVISION

PSEG Services Corporation
SURVEYS & MAPPING

CORPORATE HEADQUARTERS
80 Park Plaza
Newark, N.J. 07102-4194
Phone : (973) 430-7000
Fax : (973) 643-7350

DPRP EQUIPMENT INVENTORY SALEM & HOPE CREEK GENERATING STATION

as of FEB. 9, 2005

TOWNSHIP OF LOWER ALLOWAYS CREEK
END OF ALLOWAY CREEK NECK ROAD
SALEM COUNTY, NEW JERSEY

PSEG NUCLEAR LLC

DRAWN TPW PEER REVIEW RSD EXAMINED DCC
APPROVED DATE JAN. 25, 1996
SCALE 1"=150'

PSEG SERVICES CORPORATION
80 PARK PLAZA – NEWARK – NEW JERSEY – 07102-4194

I HEREBY CERTIFY THAT THIS PLAT HAS BEEN PREPARED UNDER MY RESPONSIBLE CHARGE AND THAT ALL DIMENSIONS AND INFORMATION ARE CORRECT AS TO THE DETAIL SHOWN.

WARNING

DAVID C. COLEMAN

N.J. PROFESSIONAL LAND SURVEYOR No. 35828
COA No. 24GA28078600

NOTES:

1. BEARINGS SHOWN HEREON HAVE BEEN TRANSFORMED FROM NJPCS NAD27 TO NJPCS NAD83 BY COMPUTERIZED METHODS UTILIZING NADCON PROCEDURES. DPRP REQUIRED "GRID TICS" IN NAD83 ARE PROVIDED IN THE FOUR CORNERS OF EACH SHEET.
2. PLANT VERTICAL DATUM EQUALS NATIONAL GEODETIC VERTICAL DATUM (NGVD-1929) PLUS 89.08'.
3. PHOTOGRAMMETRIC SURVEY BY 3DI TECHNOLOGIES, INC. EASTON, MARYLAND, FLIGHT DATED SEPT. 13, 2002.
4. BOUNDARY SURVEYS PREPARED BY JOHN G. REUTTER ASSOCIATES, CONSULTING ENGINEERS, CAMDEN, N.J., DATED 1/08/88 AND 1/02/88, FOR PSE&G.

REFERENCES:

1. DPRP EQUIPMENT INVENTORY, SALEM & HOPE CREEK GENERATING STATION (1 SHEET).
2. DPRP DRAINAGE AND LAND USE MAP, SALEM & HOPE CREEK GENERATING STATION (2 SHEETS).

PSEG SERVICES CORPORATION

I HEREBY CERTIFY THAT THIS PLAT HAS BEEN PREPARED UNDER MY RESPONSIBLE CHARGE AND THAT ALL DIMENSIONS AND INFORMATION ARE CORRECT AS TO THE DETAIL SHOWN

WARNING

DAVID C. COLEMAN

N.J. PROFESSIONAL LAND SURVEYOR No. 36828
COA No. 24GA28078500

NO.	DESCRIPTION	DWN	EXD	APD	DATE
4	Added Dry Cask Storage Area, Demin. Water Plant and Tritium Recirculation Plant.	TPW			2/3/05
3	Remove Building #10, Remove Trailers in area F6, Remove Kerosene Tank	KJ			1/3/02
2	Added Hazmat Response & Boom Trailers, 5 trailers inside cooling tower fence, 1 trailer area E-5 and Waste Oil Tanks area C-6. Removed buildings, #520, #921, #102 and mobile office. Also removed sheds & trailers areas E-5, E-4, C-4 and B-5.	TPW			1/15/99
1	Removed Jet Fuel Storage Tank, added Ethylene Glycol Tank and relocated RCRA Storage Facility.	TPW			3/12/96

REVISION

PSEG Services Corporation
SURVEYS & MAPPING

CORPORATE HEADQUARTERS
80 Park Plaza
Newark, N.J. 07102-4194
Phone : (973) 430-7000
Fax : (973) 643-7350

SITE PLAN
as of FEB. 9, 2005

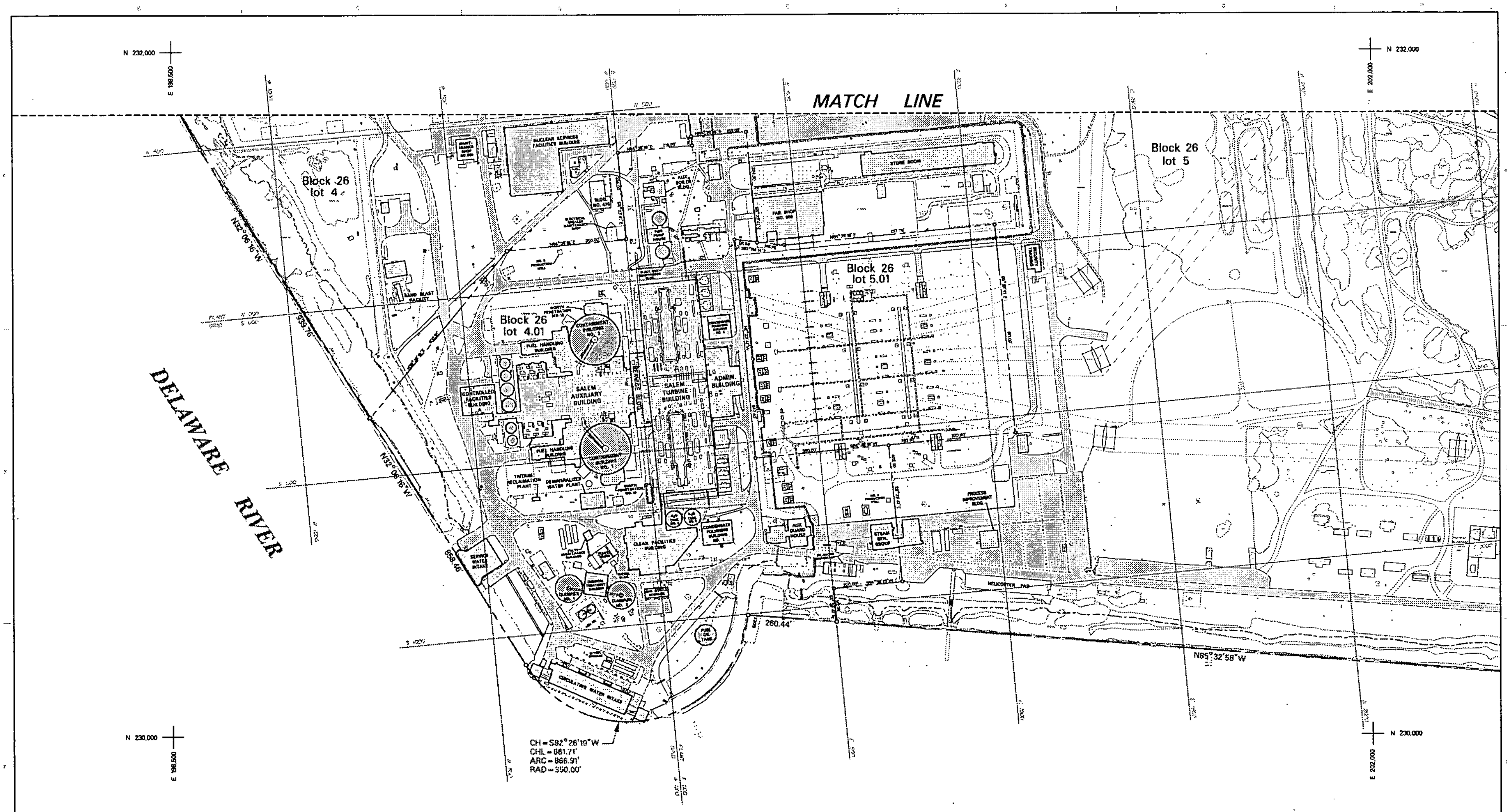
SALEM & HOPE CREEK GENERATING STATIONS
BLOCK 26 · LOTS 4, 4.01, 5 & 5.01

Sheet 1 of 3

TOWNSHIP OF LOWER ALLOWAYS CREEK SALEM CO., N.J.

PSEG NUCLEAR LLC

DRAWN TPW PEER REVIEW RSO EXAMINED DCC
APPROVED DATE JAN. 25, 1995
SCALE 1"=200'



SCALE: 1" = 100'

NOTES:

1. BEARINGS SHOWN HEREON HAVE BEEN TRANSFORMED FROM NJPCS NAD27 TO NJPCS NAD83 BY COMPUTERIZED METHODS UTILIZING NADCON PROCEDURES. DPRP REQUIRED "GRID TICS" IN NAD83 ARE PROVIDED IN THE FOUR CORNERS OF EACH SHEET.
2. PLANT VERTICAL DATUM EQUALS NATIONAL GEODETIC VERTICAL DATUM (NGVD-1929) PLUS 89.085'.
3. PHOTOGRAMMETRIC SURVEY BY 3DI TECHNOLOGIES, INC. EASTON, MARYLAND, FLIGHT DATED SEPT. 13, 2002.
4. BOUNDARY SURVEYS PREPARED BY JOHN G. REUTTER ASSOCIATES, CONSULTING ENGINEERS, CAMDEN, N.J., DATED 1/06/69, AND 1/02/68, FOR PSE&G.

REFERENCES:

1. DPRP EQUIPMENT INVENTORY, SALEM & HOPE CREEK GENERATING STATION (1 SHEET).
2. DPRP DRAINAGE AND LAND USE MAP, SALEM & HOPE CREEK GENERATING STATION (2 SHEETS).

LEGEND (N.T.S.)

- CATCH BASIN
- EVERGREEN TREE
- LIGHT POLE
- UTILITY POLE w/LIGHT
- SHRUB
- MANHOLE
- TREE
- SWAMP
- MANHOLE w/CATCH BASIN
- FIRE HYDRANT
- TRAFFIC CONTROL BOX
- UTILITY POLE
- TOWER
- P.S.E.&G. CO. PROPERTY LINE
- LOT LINE
- 100 YEAR FLOOD LINE
- SECURITY FENCE

PLANT GRID NORTH

STATE GRID NORTH (NAD83)

5°23'41"

PSEG SERVICES CORPORATION

I HEREBY CERTIFY THAT THIS PLAT HAS BEEN PREPARED UNDER MY RESPONSIBLE CHARGE AND THAT ALL DIMENSIONS AND INFORMATION ARE CORRECT AS TO THE DETAIL SHOWN.

WARNING

DAVID C. COLEMAN

N.J. PROFESSIONAL LAND SURVEYOR No. 36829
COA No. 24GA28078600

PSEG Services Corporation
SURVEYS & MAPPING

CORPORATE HEADQUARTERS
80 Park Plaza
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Phone : (973) 430-7000
Fax : (973) 643-7350

SITE PLAN

as of FEB. 9, 2005

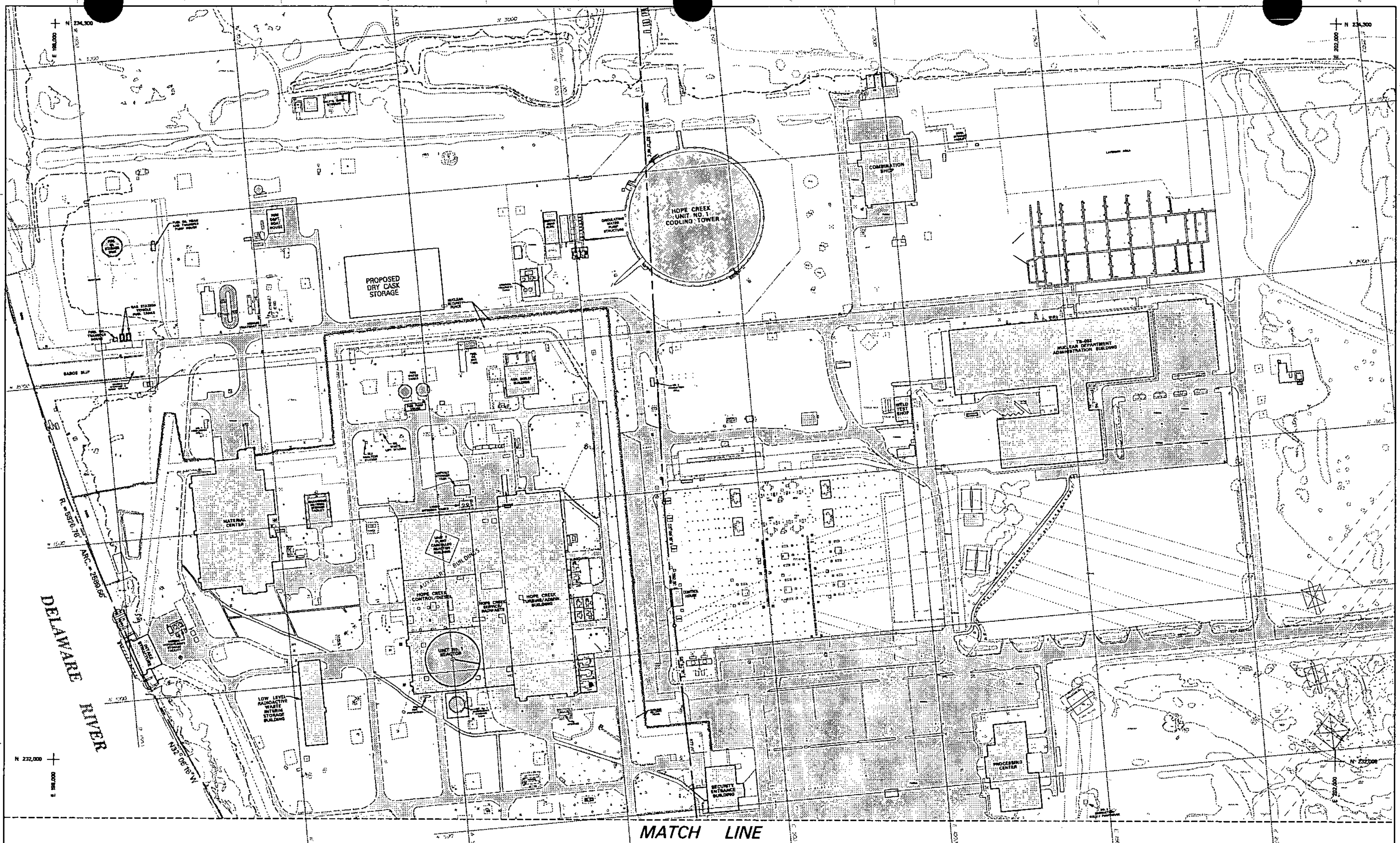
SALEM & HOPE CREEK GENERATING STATIONS
BLOCK 26 · LOTS 4, 4.01, 5 & 5.01

Sheet 2 of 3

TOWNSHIP OF LOWER ALLOWAYS CREEK — SALEM CO., N.J.

PSEG NUCLEAR LLC

DRAWN	TPW	PEER REVIEW	RSD	EXAMINED	DCC
APPROVED				DATE	JAN. 25, 1996
SCALE	1"=100'				



NOTES:

1. BEARINGS SHOWN HEREON HAVE BEEN TRANSFORMED FROM NJPCS NAD27 TO NJPCS NAD83 BY COMPUTERIZED METHODS UTILIZING NADCON PROCEDURES. OPRP REQUIRED "GRID TICS" IN NAD83 ARE PROVIDED IN THE FOUR CORNERS OF EACH SHEET.
2. PLANT VERTICAL DATUM EQUALS NATIONAL GEODETIC VERTICAL DATUM (NGVD-1929) PLUS 89.085'.
3. PHOTOGRAMMETRIC SURVEY BY 3DI TECHNOLOGIES, INC. EASTON, MARYLAND, FLIGHT DATED SEPT. 13, 2002.
4. BOUNDARY SURVEYS PREPARED BY JOHN G. REUTTER ASSOCIATES, CONSULTING ENGINEERS, CAMDEN, N.J., DATED 1/06/68, AND 1/02/68, FOR PSE&G.

REFERENCES:

1. OPRP EQUIPMENT INVENTORY, SALEM & HOPE CREEK GENERATING STATION (1 SHEET).
2. OPRP DRAINAGE AND LAND USE MAP, SALEM & HOPE CREEK GENERATING STATION (2 SHEETS).

LEGEND (N.T.S.)

- CATCH BASIN
- EVERGREEN TREE
- LIGHT POLE
- UTILITY POLE w/LIGHT
- SHRUB
- MANHOLE
- TREE
- SWAMP
- MANHOLE w/CATCH BASIN
- FIRE HYDRANT
- TRAFFIC CONTROL BOX
- UTILITY POLE
- TOWER
- P.S.E.&G. CO. PROPERTY LINE
- LOT LINE
- 100 YEAR FLOOD LINE
- SECURITY FENCE

STATE GRID NORTH (NAD83)
PLANT GRID NORTH
6°23'41"

100 0 100 200 300 FEET

SCALE: 1" = 100'

PSEG SERVICES CORPORATION

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WARNING

DAVID C. COLEMAN

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SITE PLAN

as of FEB. 9, 2005

SALEM & HOPE CREEK GENERATING STATIONS
BLOCK 26 · LOTS 4, 4.01, 5 & 5.01

Sheet 3 of 3

TOWNSHIP OF LOWER ALLOWAYS CREEK SALEM CO., N.J.

PSEG NUCLEAR LLC

DRAWN TPM PEER REVIEW RSD EXAMINED DCC
APPROVED DATE JAN. 25, 1996
SCALE 1"=100'

STORMWATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN

SECTION 1: GENERAL INFORMATION

1.1 FACILITY INFORMATION

Name:	Salem Generating Station Hope Creek Generating Station	
Mailing Address:	P.O. Box 236 Hancocks Bridge, NJ 08038	
Location:	PSEG Nuclear LLC Alloway Creek Neck Road Lower Alloways Creek Township	
Town:	Lower Alloways Creek Township	
County:	Salem	
Phone Number:	Salem Radwaste and Environmental Supervisor (856) 339-2686 Hope Creek Radwaste and Environmental Supervisor (856) 339-5411	
Telefacsimile Number:	Salem Radwaste and Environmental Supervisor (856) 339-2619 Hope Creek Radwaste and Environmental Supervisor (856) 339-3546	
Coordinate Centroid (NJ):	Salem Station Hope Creek Station	N 230, 436.38 / E 1, 754, 670.51 N 232, 184.40 / E 1, 754, 148.80
Geodetic Position:	Salem Station	N 39° 27' 46" / W 75° 32' 08"

Hope Creek Station N 39° 28' 03" / W 75° 32' 15"

Tax Lot and Block Information

This document includes the following properties (taken from Lower Alloways Creek Township current tax records):

Lots: 4, 4.01, 5, and 5.01; **Block:** 26

1.2 FACILITY DESCRIPTION

The entire facility occupies approximately 740 acres of land including: Salem (220 acres), Hope Creek (153 acres), and uncommitted land (367 acres). PSEG Nuclear LLC is located on the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey. The site is located 18 miles south of Wilmington, Delaware, 30 miles southwest of Philadelphia, Pennsylvania, and 7.5 miles southwest of Salem, New Jersey.

Salem and Hope Creek Generating Stations are steam electric nuclear power plants which use nuclear fuel to generate electrical energy. The Standard Industrial Classification (SIC) Code for the facility is 4911; the North American Industrial Classification System (NAICS) Code for the facility is 221113. The facility is co-owned by PSEG Nuclear LLC and Exelon (formerly PECO), and is operated by PSEG Nuclear LLC with corporate offices located at:

80 Park Plaza
Newark, NJ 07101
(973) 430-7000

Detailed engineering plans and other facility documents are available onsite. Authorized regulatory agency personnel may gain access to the facility and these documents by contacting Salem Radwaste and Environmental Supervisor at (856) 339-2686 or Hope Creek Radwaste and Environmental Supervisor at (856) 339-5411 during normal working hours.

1.3 APPLICABLE REQUIREMENTS

Salem and Hope Creek Generating Stations are authorized by the New Jersey Department of Environmental Protection (NJDEP), through the New Jersey Pollutant Discharge Elimination System (NJPDES) Permitting Program, to discharge stormwater runoff and liquid effluents from the treatment systems into the Delaware River. Copies of the approved permits are presented in Volume 2, Appendix E, Salem NJPDES Permit (No. NJ0005622), and Appendix F, Hope Creek NJPDES Permit (No. NJ0025411), of the Discharge Prevention and Response Program (DPRP).

The Salem Generating Station NJPDES Permit authorizes discharges from non-contact cooling water (Discharge Serial Numbers (DSNs) 481 through 486), yard drainage systems (DSNs 487 and 489), and the Non-Radioactive Liquid Waste Disposal System (NRLWDS) industrial wastewater treatment system (DSN 48C). Three (3) other outfalls (DSNs 488, 490, and 491) only carry stormwater runoff and do not require analytical monitoring under the current NJPDES permit. The permit has been reissued by the NJDEP effective June 29, 2001. Currently, a resubmittal application was submitted to NJDEP in December 2003 and is pending approval. A schematic of the Salem Generating Station NJPDES DSN flows is shown in Part II, series of Figure II-1, of the DPRP.

The Hope Creek Generating Station NJPDES Permit authorizes discharges from the Cooling Tower Blowdown (DSN 461A), the NJPDES Low Volume and Oily Waste (LVOW) Treatment System (DSN 461C), Yard Drainage Systems (DSNs 462A, 463A, and 464), and the Domestic Sewage Treatment Plant (DSN 462B). The permit has been reissued by the NJDEP effective March 1, 2003. Currently, a resubmittal application was resubmitted to NJDEP in September 2007 and is pending approval. A schematic of the Hope Creek Generating Station NJPDES DSN flows is shown in Part II, series of Figure II-2, of the DPRP.

This Stormwater Pollution Prevention Plan (SPPP) is prepared in accordance with good engineering practices, and employs the best practical technologies as discussed in the NJPDES Permits and the United States Environmental Protection Agency (USEPA) manual "Storm Water Management for Industrial Activities", EPA 832-R-92-006. Salem and Hope Creek Generating Stations monitor the effluent quality of the outfalls in accordance with NJPDES Permits NJ0005622 and NJ0025411, and submit Discharge Monitoring Reports (DMRs) to the NJDEP in accordance with the NJPDES permit conditions.

SECTION 2: STORMWATER POLLUTION PREVENTION PLAN

2.1 PURPOSE OF THE PLAN

The facility has a diversion/treatment system to collect and treat stormwater runoff from key areas. A detailed discussion of the diversion and treatment system is presented in Part II, Section 2.4.2, of the DPRP.

This SPPP is designed to meet the following objectives:

1. Identify potential pollution sources and onsite source materials, which may reasonably be expected to affect stormwater discharge quality associated with industrial activity;

2. Describe and ensure that practices are implemented to eliminate and/or reduce pollutant stormwater discharge source materials associated with industrial activities at this site; and

3. Ensure compliance with Salem NJPDES Permit NJ0005622 and Hope Creek NJPDES Permit NJ0025411.

2.2 STORMWATER POLLUTION PREVENTION TEAM

The Stormwater Pollution Prevention Team (SPPT) is responsible for the development, implementation, maintenance, and revision of the SPPP. The SPPT may consist of various station personnel as described in Part III, Section 2, Discharge Response Personnel, of the DPRP, depending on the nature of the need.

The principal members of the SPPT and their associated responsibilities are as follows:

1. **Chemistry, Radwaste and Environmental Supervisors**

Chemistry, Radwaste and Environmental Supervisors maintains day-to-day responsibility for the review of new construction and changes in processes and procedures relative to the SPPP. In addition, Chemistry, Radwaste and Environmental Supervisors ensure that inspections, preventive maintenance and good housekeeping are conducted as outlined in the SPPP. Chemistry, Radwaste and Environmental Supervisors provide expert assistance in developing policies and the Best Management Practices (BMPs) for implementation of the SPPP, ensures that applicable reports required by the SPPP are submitted, and has overall responsibility for the SPPP enforcement, implementation, maintenance, and team management. Chemistry, Radwaste and Environmental Supervisors also perform quarterly inspections.

2. **Chemistry Supervisor - NJPDES**

The Chemistry Department provides day-to-day oversight of the NJPDES Compliance Program under the authority of the Operations Manager. Chemistry performs daily walkdowns of their systems.

3. **PSEG Nuclear LLC Engineering - Civil**

PSEG Nuclear LLC's Engineering organization provides support for the proper evaluation of facility structural controls. This representative performs annual inspections for integrity.

4. **PSEG Nuclear LLC Maintenance**

PSEG Nuclear LLC's Maintenance organization provides support for the proper evaluation of facility maintenance and housekeeping. This organization also performs weekly inspections.

2.3 EXISTING ENVIRONMENTAL MANAGEMENT PLANS

2.3.1 Discharge Prevention and Response Program

PSEG Nuclear LLC has developed a comprehensive *Discharge Prevention and Response Program (DPRP)* for the Salem and Hope Creek Generating Stations. This DPRP was submitted as the 3-year cycle renewal of the *Discharge Prevention, Containment, and Countermeasure/ Discharge Cleanup and Removal (DPCC/DCR) Plan* and was last approved by the NJDEP on November 29, 2005. This Program incorporates the requirements of the NJDEP *Discharge Prevention, Containment, and Countermeasure/Discharge Cleanup and Removal (DPCC/DCR) Plans,* the USEPA *Facility Response Plan (FRP), Spill Prevention, Control, and Countermeasure (SPCC) Plan,* and *Hazardous Waste Contingency Plan (HWCP),* and the National Oceanic and Atmospheric Administration (NOAA) *Natural Resource Damage Assessment (NRDA) Protocol.*

This Program has the full approval and support of PSEG Nuclear LLC's management, which commits the necessary resources required for implementation. The intent of this Program is to provide a working document meeting the requirements of the applicable State and Federal regulations as described in Part I, Sections 1.1 and 1.2, of the DPRP. A copy of the DPRP, of which this SPPP is a part, is maintained and available for review at the facility.

2.3.2 Discharge Prevention, Containment, and Countermeasure Plan and Discharge Cleanup and Removal Plan

PSEG Nuclear LLC has prepared the DPCC/DCR Plan for the Salem and Hope Creek Generating Stations to satisfy the requirements as defined in New Jersey Administrative Code, Title 7, Chapter 1E (NJAC 7:1E-1 et seq.). The original issuance of the DPCC/DCR Plan was approved by the NJDEP on July 27, 1993; the 3-year cycle renewal of the DPCC/DCR Plan was last approved by the NJDEP on November 29, 2005. The spill/discharge prevention and response elements of the NJDEP DPCC/DCR Plan are presented in Part II and Part III of the DPRP.

2.3.3 Facility Response Plan

PSEG Nuclear LLC has prepared the FRP for the Salem and Hope Creek Generating Stations to satisfy the requirements as defined in Code of Federal Regulations, Title 40, Parts 9 and 112 (40 CFR 9 and 112), Oil Pollution Prevention, Non-Transportation-Related Onshore Facilities, Final Rule published July 1, 1994. The spill/discharge response elements of the USEPA FRP are presented in Part III of the DPRP. The FRP was resubmitted January 31, 2003 pursuant to the revised 40 CFR 9 and 112 as of August 16, 2002. The FRP renewal is pending final approval by the USEPA.

2.3.4 Spill Prevention, Control, and Countermeasure Plan

PSEG Nuclear LLC has prepared the SPCC Plan for the Salem and Hope Creek Generating Stations to satisfy the requirements as defined in Code of Federal Regulations, Title 40, Part 112 (40 CFR 112), Oil Pollution Prevention, Non-Transportation-Related Onshore Facilities. The spill/discharge prevention and response elements of the USEPA SPCC Plan are presented in Part II and Part III of the DPRP.

SECTION 3: SITE ASSESSMENT AND EXISTING CONDITIONS

3.1 INVENTORY OF POTENTIAL POLLUTANT SOURCES

The potential stormwater pollutant sources at the facility include, but are not limited to, raw materials, waste materials, by-products, fuels and lubricants, dielectric fluids, solvents and detergents, etc. A location number has been assigned to each source, which corresponds to the number on the DPRP Equipment Inventory Map presented under the Maps Tab of the DPRP. The location of each source is presented in Part II, Tables II-1A through 1D, 2A, and 2B, of the DPRP. The DPRP and this SPPP are reviewed and updated at least annually.

The following list presents the general categories of source materials that have been used, loaded/unloaded, stored, treated and/or leaked in a manner to potentially allow exposure to stormwater. Aboveground storage tanks at the facility meet the standards and requirements specified in NJAC 7:1E-2.2 and 2.6, except as otherwise noted in Part II, Section 2, of the DPRP.

3.1.1 Tanks Outside the Power Blocks

The following are the tanks used for bulk storage of hazardous substances located outside the Power Blocks and subject to stormwater contact. The detailed descriptions of the tank types and capacities are discussed in Part II, Section 2.1.1, and Part II, Tables II-1A, 1B, and 1C, of the DPRP; descriptions of secondary containments for these tanks are presented in Part II, Section 2.4, of the DPRP.

3.1.1.1 Salem Generating Station

Main Fuel Oil Storage Tank (Location No. S9)

This steel tank is located east of the Salem cooling water intake and inside a diked area. The tank is equipped with a level indicator. The tank has a capacity of 840,000 gallons and a secondary containment, which is constructed of impermeable membrane liner and concrete, of 1,435,083 gallons. The liquid level inside the tank is recorded daily and variations in volume are reconciled monthly. Operating personnel conduct daily inspections and practice good housekeeping and maintenance. Stormwater in the secondary containment is pumped out by Maintenance and diverted to the oil/water separator for treatment prior to discharge.

Cooling Water Sodium Hypochlorite Storage Tanks (Location Nos. S4, S5)

Two lined steel tanks are located southwest of the Unit 1 reactor and are used for the storage of sodium hypochlorite solution for use in the circulating water system. These tanks are equipped with Uehling mercury level indicators. The tanks have a capacity of 88,000 gallons each and a common secondary containment, which is constructed of a synthetic impermeable liner over a sand/gravel/earthen dike, of 184,611 gallons. Stormwater in the secondary containment is pumped out and tested prior to discharge.

Oil/Water Separator "Used Oil" Storage Tank (Location No. S137)

These two steel tanks, associated with the Salem oil/water separator, are located north of the oil/water separator. These tanks are equipped with level indicators. There is one 500-gallon "used oil" storage tank and one 5,000-gallon sludge storage tank. The tanks have a common concrete containment of 6,000 gallons. The containment diverts to the oil/water separator for treatment prior to discharge.

Propylene Glycol Storage Tank (Location No. S138)

This steel tank is located east of the Salem circulating water intake and immediately adjacent to the Circulating Water System (CWS) heating boiler. This tank is used to hold the heating boiler propylene glycol during system maintenance. The tank has a capacity of 5,200 gallons and a steel secondary containment of 5,543 gallons. The tank has an audible/visual high level alarm. This tank previously contained ethylene glycol but has been replaced with propylene glycol, which is not listed as a hazardous substance pursuant to NJAC 7:1E, Appendix A.

3.1.1.2 Hope Creek Generating Station

Main Fuel Oil Storage Tank (Location No. H8)

This steel tank is located north of the Hope Creek Barge Slip inside a diked area. The tank is constructed of steel and is equipped with a Shand and Jurs automatic tank gauge, and a high level alarm. The tank capacity is 1,000,000 gallons, and the secondary containment capacity, which is an earthen clay liner, is 1,281,000 gallons. The liquid level inside the tank is recorded daily and variations in volume are reconciled monthly. Operating personnel conduct daily inspections to assure good housekeeping and maintenance practices are observed. Stormwater from the secondary containment is diverted to the NJPDES Low Volume and Oily Waste (LVOW) Treatment System prior to discharge.

Circulating Water Caustic Storage Tank (Location No. H1)

This lined carbon steel caustic storage tank is located west-southwest of the Hope Creek Cooling Tower and inside a diked area. This tank has a Unisonic level indicator and high level alarm. The tank capacity is 21,154 gallons, and the concrete secondary containment capacity is 26,145 gallons. Stormwater from the secondary containment is diverted to the NJPDES LVOW Treatment System prior to discharge.

Dispersant Storage Tank (Location No. H46)

This is a coated fiberglass reinforced plastic tank located west-southwest of the Hope Creek Cooling Tower and inside a diked area. The tank includes a sight glass level indicator. This tank is presently not in use, and the opening to the fill line is welded shut. This tank will be provided with a secondary means of overfill protection prior to putting the tank back into service. Stormwater from the concrete secondary containment is diverted to the NJPDES LVOW Treatment System prior to discharge.

Ammonium Bisulfite Storage Tank (Location No. H14)

This is a coated fiberglass reinforced plastic tank located west-southwest of the Hope Creek Cooling Tower and inside a concrete diked area. This tank is equipped with a sight glass, remote Unisonic level indicator, and remote high level alarm. The tank capacity is 5,000 gallons, and the concrete secondary containment is 6,359 gallons. Stormwater from the secondary containment is diverted to the NJPDES LVOW Treatment System prior to discharge.

Sodium Hypochlorite Storage Tanks (Location Nos. H2, H3, H4, H5)

These tanks are constructed of carbon steel with a Durakane 411 lining. The tanks are equipped with level indicators and high level alarms. H2 and H3 are located west-southwest of the Hope Creek Cooling Tower and inside a concrete diked area. These tanks have a capacity of 30,000 gallons each, and their common concrete secondary containment is 72,140 gallons. H4 and H5 are located east of the Service Water Intake Structure and inside a concrete diked area. These tanks have a capacity of 15,254 gallons each, and their common concrete secondary containment is 19,907 gallons. Stormwater from the secondary containment for H2 and H3 is diverted to the NJPDES LVOW Treatment System (DSN 461C) prior to discharge through the Hope Creek Cooling Tower Blowdown (DSN 461A). Stormwater from the secondary containment for tanks H4 and H5 is retained and tested prior to release to DSN 463A.

Auxiliary Boiler Fuel Oil Day Tank (Location No. H10)

This steel tank is located northwest of the Auxiliary Boiler Building and inside a concrete diked area. The tank has a sight glass level indicator and a high level alarm. The tank capacity is 18,000 gallons, and the concrete secondary containment is 25,559 gallons. Stormwater from the secondary containment is diverted to the NJPDES LVOW Treatment System prior to discharge.

"Used Oil" Holding Tank (Location No. H24)

This steel tank is located west of the Hope Creek Cooling Tower and inside a concrete diked area. The tank is a part of the NJPDES LVOW Treatment System and is equipped with a level indicator. The tank has a capacity of 15,000 gallons and a concrete secondary containment of 15,700 gallons. Stormwater from the secondary containment is diverted to the Hope Creek Cooling Tower Blowdown for discharge.

Diesel Fuel Day Tanks (Location Nos. H11, H13)

These steel tanks are located outside of the Fire Pump House. The tanks are equipped with level indicators. The tanks have a capacity of 300 gallons each and a concrete secondary containment of 380 gallons each. Stormwater from the secondary containment is pumped out by Maintenance and tested prior to release. Tank No. H13 is out of service and abandoned in place.

Vehicular Refueling Tanks (Location Nos. H47, H48)

Two steel tanks are located north of the Hope Creek Barge Slip. One tank (Location No. H47) contains gasoline and the other contains (Location No. H48) diesel fuel. The tanks are equipped with level indicators and an audible/visual high level alarm. The tanks each have a capacity of 6,000 gallons and are installed inside steel containments and are further protected by concrete containments of 6,000 gallons each. Stormwater is pumped out by Maintenance and diverted to the NJPDES LVOW Treatment System prior to discharge.

3.1.2 Tanks Inside the Power Blocks

There are numerous tanks used for bulk storage of hazardous substances located inside the Power Blocks. The detailed descriptions of the tank types and capacities are discussed in Part II, Section 2.1.2, and Part II, Tables II-1A, 1B, and 1C, of the DPRP. By the nature of their locations, they are not exposed to stormwater.

3.1.3 Underground Storage Tanks (USTs)

Presently, there are no regulated underground storage tanks (USTs) at the Salem and Hope Creek Generating Stations.

3.1.4 Mobile or Portable Storage Tanks

Various mobile and portable tanks are placed in designated locations at the Salem and Hope Creek Generating Stations. Their usage and locations are discussed in Part II, Section 2.1.4, of the DPRP. Good housekeeping and maintenance practices described in Part II, Section 2.10, of the DPRP are exercised on a regular basis. All tanks are inspected weekly to identify potential pollution/stormwater issues.

3.1.5 Drum Storage Areas for Hazardous Substances

There are numerous warehouses, storage sheds, and laydown areas, both onsite and offsite, which store materials and equipment; the chemicals can be miscellaneous chemicals, petroleum products, hazardous waste and materials, dielectric fluid, oils, and solvents, etc. The locations, container type, product type, product quantity, containment type and capacity of these storage areas are presented in Part II, Section 2.1.5, and Part II, Table II-1C, of the DPRP. These areas are managed in accordance with the housekeeping and maintenance practices as described in Part II, Section 2.10, of the DPRP. The 180-day hazardous waste storage areas are managed in accordance with the facility Hazardous Waste Contingency Plan as described in Part II, Section 2.15, of the DPRP. The following is the list of those storage areas that may be exposed to stormwater runoff.

Empty Drum Site (Location No. SH2)

This open area, located north of the Hope Creek Cooling Tower, is used to store empty drums and tanks and will not affect the quality of stormwater discharges.

Hazardous Waste Storage Facility (Location Nos. SH3, SH5, SH30)

There are three (3) storage areas at the facility for temporary storage/accumulation of drummed hazardous waste. The storage/accumulation areas include Location SH3 located inside the Protected Area, west of the Nuclear Operations Service Facility, Location SH5 located outside the Protected Area and within the Owner Controlled Area at the Combo Shop, and Location SH30 located inside the Protected Area, in the west section of the Hope Creek Turbine Building.

Laydown Areas (Location Nos. SH6, SH7)

The laydown areas located east of the Yard Maintenance (Combo) Shop (Location No. SH5) contain petroleum products, general scrap metal, several transformer heads, and stacked empty drums.

Temporary Storage Area (Location No. SH13)

This area located north of the Salem Access Road is used for temporary storage of transformers. The storage area has a concrete floor and walls for secondary containment. Any spills or rainwater inside the containment is removed via vacuum truck drain; oily water is removed for treatment onsite and discharged in accordance with the Salem NJPDES Permit.

Hazardous Material (HAZMAT) Storage Facility (Location No. SH27)

This facility is located east of the Materials Center (Location No. SH9) and inside the security fence. The facility has a 6-inch high asphalt concrete curb and elevated asphalt concrete floor suitable for storing up to ten (10) individual hazardous storage modules. Each module has an integral containment sump, self-contained safety eye wash, electrical heat and ventilation fan, and storage racks.

Spills within the hazardous storage module will be contained by the integral containment and sump system. Spills outside the module will flow towards a gravel filled discharge prevention zone for containment and removal.

3.1.6 Small Quantity Chemical Storage Areas

These storage areas are described in Part II, Section 2.1.6, and Part II, Table II-1D, of the DPRP. These areas are largely indoors and not subject to stormwater contact. They are also numbered and shown on the DPRP Equipment Inventory Map. These areas include laboratories, mobile test trailers, chemical storage areas, lockers, cabinets, buildings, etc. Chemicals in these locations include sodium hypochlorite, acetone, hydrochloric acid, sulfuric acid, petroleum oil, nitric acid, sodium hydroxide, paints, primers, thinners, etc. The areas are subject to annual Community Right-to-Know survey and reporting requirements, and they are managed under Nuclear Administrative Procedures, NC.NA-AP.ZZ-0038(Z), NAP-38, Chemical Control Program, and NC.CH-AP.ZZ-0038, CHAP-38, Chemical Control Process.

3.1.7 Oil-Containing Electrical Equipment

The PSEG Nuclear LLC facility has numerous transformers, oil circuit breakers (OCBs), and switches, which are filled with dielectric fluid to provide cooling and electrical insulation. As discussed in Part II, Section 2.4.1.6, of the DPRP, oil-filled electrical equipment is inspected weekly and quarterly for leaks; in addition, oil-filled electrical equipment containing polychlorinated biphenyls (PCBs) is also inspected quarterly per 40 CFR 761. Written checklists are used for inspections and are maintained onsite.

Presently, secondary containment or diversion has been provided for large oil-filled transformers. When existing electrical equipment is upgraded and/or replaced, PSEG Nuclear LLC will install secondary containment structures and/or diversion systems on a scheduled basis where practicable.

3.1.8 Storage Areas for Road Sand and Salt

Road sand and salt are stored indoors to prevent direct contact with stormwater. When road sand and salt are temporarily stored outdoors, they are placed on concrete pads and covered with polyethylene sheets to minimize the exposure to rain.

3.1.9 Trash and Recycling Dumpsters

Trash and recycling dumpsters are placed at designated locations throughout the site for regular pickup. Any dumpsters containing recyclable materials (example: aluminum cans, paper, plastic and glass) or trash materials with obvious oil or chemical residues (example: metal shavings/filings with oil residue) have covers to minimize exposure to stormwater. Trash with no evidence of oil or chemical residue (example: trash contained in plastic bags, construction debris, river debris from Circulating Water Intake, etc.) may be kept in open top dumpsters. As part of the PSEG Nuclear LLC Housekeeping Program, they are inspected regularly for overfill.

3.1.10 Equipment Parking Areas and Parking Lots

There are various outdoor equipment parking areas and parking lots at the PSEG Nuclear LLC facility. Most of these areas are paved. PSEG Nuclear LLC maintains good housekeeping practices, as discussed in Part II, Section 2.10, of the DPRP, and conducts daily inspections for leaking oil and fluids. If a leak is detected, the equipment or vehicle will be promptly repaired or removed. Drip pans, buckets, sorbent materials may be used to capture and contain the leaking oil and fluids.

3.1.11 Tank Truck Transfer Areas

Liquid chemicals, lubricating oils, fuel oils, and other petroleum products are delivered to the facility in over-the-road tank trucks. Tank truck transfer areas are paved or surfaced with impermeable materials, and equipped with an adequate means of secondary containment or diversion, designed and built pursuant to NJAC 7:1E-2.6 and discussed in detail in Part II, Section 2.3, of the DPRP, and in accordance with the approved alternative means of compliance documentation provided in Volume 2, Appendix D, Regulatory Letters/Approvals, of the DPRP, Document Nos. D66 and D74. The loading and unloading operations at transfer areas meet the requirements of NJAC 7:1E-2.3. Where practicable, secondary containments for loading/unloading different materials have been combined to minimize the number of handling areas.

Transfer areas are provided with a diversion drain to either a treatment system or the yard drainage system. During truck unloading, a plug is placed in the yard drain to prevent any spillage or leakage from escaping into the drain system.

To ensure maximum protection of employees at the facility, the public and the environment, PSEG Nuclear LLC has developed detailed operating instructions for tank truck deliveries. The following is the list of transfer areas at the Salem and Hope Creek Generating Stations, and they are also listed in Part II, Tables II-2A and 2B, of the DPRP, and the DPRP Equipment Inventory Map.

3.1.11.1 Salem Generating Station

<u>NOSF Temporary Equipment Containment</u> (Location No. S56)

This area has a concrete floor and curbing. A central drain is isolated during transfers. Any collected stormwater is discharged via the yard drain system via DSN 463A.

Acid/Caustic Unloading Areas (Location Nos. S81, S83, S86)

The Condensate Polishing System Acid/Caustic Unloading Area (Location No. S81) is a curbed, concrete pad sloped to the central drain which connects to the yard drain system DSN 489. The unloading area drain is isolated during chemical transfer. All leaks which may occur during transfer operations are cleaned up prior to releasing the drain isolation.

The Demineralizer Plant Acid/Caustic Unloading Area (Location No. S83) is a concrete slab completely surrounded by a grated acid/caustic resistant trench; any spill flows to the trench and is then routed through the chemical waste tank to the Non-Radioactive Liquid Waste Disposal System (NRLWDS) Treatment System (DSN 48C).

The NRLWDS Caustic Unloading Area (Location No. S86) is a curbed, concrete pad with drains connecting to the NRLWDS chemical sump for processing leaks through the treatment system (DSN 48C).

Ammonia/Lubricating Oil Unloading Area (Location No. S82)

Ammonium hydroxide and turbine lubricating oils are unloaded at this area into their respective systems adjacent to the Unit 1 main transformers. This area has a curbed concrete secondary containment with central drain which is isolated during chemical transfer. The drain connects to the DSN 489 yard drain system and oil/water separator. All leaks which may occur during transfer operations are cleaned up prior to releasing the drain isolation.

Main Fuel Oil Unloading Area (Location No. S84)

This area has a concrete floor and curbing. A central drain, isolated during fuel transfer, connects to the yard drain system DSN 488. Any spills within the curbed area are removed by pumping or absorbent material as appropriate. All leaks which may occur during transfer operations are cleaned up prior to releasing the drain isolation.

Sodium Hypochlorite Transfer Area (Location No. S85)

This area is a curbed, concrete pad with a central drain, which is isolated during chemical transfer. The drain connects to the yard drain system. Any leaks and spills within the unloading area will be pumped via a temporary sump to the adjacent NJPDES wastewater treatment facility prior to re-establishing flow to the yard drain system DSN 488.

Oil/Water Separator (Location No. S87)

This area has a concrete floor and curbing. A central drain releases into the inlet chamber of the oil/water separator and is discharged via DSN 489.

Dichromated Skid Truck Containment

The Dichromated Skid Truck Containment (Location No. S136) is located within a stand alone building and has a concrete floor and is surrounded by a concrete curb. Any leak is contained within the structure.

3.1.11.2 Hope Creek Generating Station

Main Fuel Oil Unloading Area/Vehicular Refueling Station (Location No. H76)

This area has a concrete surface and is completely surrounded by concrete curbing. The containment has a diversion drain to Lift Station 1B of the NJPDES LVOW Treatment System (DSN 461A). This is also the transfer area for two vehicular refueling tanks as described in Section 3.1.1.2.

Cooling Tower Chemical Transfer Area (Location No. H77)

This area serves for the unloading of sodium hydroxide, dispersant (Betz Powerline PEG 01), ammonium bisulfite, and sodium hypochlorite. It has a diversion drain directed to the NJPDES LVOW Treatment System (DSN 461A). This area has a concrete pad and curbing.

The chemical dispersant is currently not being used in the treatment process and the dispersant storage tank is empty.

Demineralizer Regenerant/Turbine Lubricating Oil Transfer Area (Location No. H78)

This area serves for transferring demineralizer regenerant chemicals, sodium hydroxide, sulfuric acid, and turbine lubricating oils into the plant storage tanks. The area has a curbed concrete pad which extends beneath the unloading hose connections and an integral drain directed to the NJPDES LVOW Treatment System (DSN 461A).

Auxiliary Boiler Fuel Oil Unloading Area (Location No. H79)

This area has a concrete pad and curbing. There is a diversion drain in the containment area connecting to the NJPDES LVOW Treatment System (DSN 461A).

Service Water Sodium Hypochlorite Transfer Area (Location No. H80)

This area has a curbed concrete pad with an integral drain which connects to the yard drain system DSN 463A. The drain is isolated during the unloading operation.

NJPDES Low Volume Oily Waste (LVOW) (Location No. H81)

The NJPDES LVOW Transfer Area consists of a poured concrete vault with an integral drain connecting to the NJPDES LVOW Treatment System (DSN 461A). Temporary truck containment is available to contain the volume of the largest tank compartment.

Diesel Generator Fuel Oil Unloading Area (Location No. H82)

This area consists of a curbed concrete pad with an integral valved drain connecting to the NJPDES LVOW Treatment System (DSN 461A). The hose connections are located within the containment area to collect any leakage or spillage.

Chiller Building Unloading Area

The Chiller Building Unloading Area (Location No. H98) has a curbed concrete pad. This area is managed under the Housekeeping Program.

3.1.12 Process Areas for Hazardous Substances

The process areas at PSEG Nuclear LLC contain numerous vessels, machine equipment, and process tanks which contain, use, or store various amounts of sodium hypochlorite, sulfuric acid, ammonium hydroxide, hydrazine, sodium hydroxide, ammonium bisulfite, fuel and lubricating oils. The storage tanks at these process areas and their associated secondary containments are described in Part II, Sections 2.1 and 2.5, and Part II, Tables II-1A, 1B, and 1C, of the DPRP, and the DPRP Equipment Inventory Map. Process areas are normally contained within buildings or containment structures; appropriate absorbent materials are maintained to facilitate cleanup of liquids spilled during normal operations. All items located in process areas have various combinations of secondary containment or curbing which drain to an appropriate treatment system. For Salem Generating Station, the process areas are the Turbine and Auxiliary Buildings, NRLWDS Building, Chlorination Facilities, Condensate Polisher Systems, Auxiliary Boiler Building, and Fire Pump and Fresh Water Building. For Hope Creek Generating Station, the process areas are the Turbine and Auxiliary Buildings, Cooling Tower Chemical Control Buildings, Service Water Chlorination Building, Auxiliary Boiler Building, and Fire Pump Building.

3.1.13 In-Facility Pipes for Hazardous Substances

The in-facility pipes for hazardous substances are labeled in compliance with the New Jersey Right-to-Know labeling requirements outlined in NJAC 8:59-5.2; the pipes are marked by lettering, color coding, and/or with the CAS number to indicate the product transferred through them. This facilitates tracing of lines through the plant, identification of leaking lines, and identification of the lines for health and safety purposes. They are discussed in detail in Part II, Section 2.6, of the DPRP.

3.2 DIVERSION/TREATMENT SYSTEMS

PSEG Nuclear LLC has onsite NJPDES permitted wastewater collection and treatment systems. The buildings act as secondary containment for spills or leaks within the Power Plant; the spills or leaks are directed into the building floor sumps and pumped to the appropriate treatment systems for processing in accordance with the current NJPDES permits, prior to their release to the Delaware River.

For storage and process areas outside of the facility buildings, spills are either contained or diverted into the treatment systems, or collected for offsite disposal as needed. The facility has a NJPDES permit to discharge stormwater runoff and liquid effluents through the NJPDES permitted outfalls. All effluent discharge points or outfalls are identified with a unique Discharge Serial Number

(DSN); the DSN locations are shown on the General Site Plan under the Maps Tab of the DPRP, and the DSN Flow Diagrams are shown in Part II, Figures II-1 and II-2, of the DPRP. Any release into the Delaware River can only occur at the designated outfalls and are monitored in accordance with the NJPDES permits. Copies of the approved permits are presented in Volume 2, Appendix E and Appendix F, of the DPRP for Salem and Hope Creek Generating Stations, respectively.

A detailed discussion of the facility diversion and treatment systems is presented in Part II, Section 2.4.2, of the DPRP. The following is the list of diversion/treatment systems at the Salem and Hope Creek Generating Stations:

Salem Generating Station (NJPDES Permit No. NJ0005622)

- Non-Contact Cooling Discharge;
- Liquid Radioactive Waste Disposal System;
- Industrial Wastewater Treatment System
(a.k.a. Non-Radioactive Liquid Waste Disposal System);
- Oil/Water Separator; and
- Yard Drainage System.

Hope Creek Generating Station (NJPDES Permit No. NJ0025411)

- Liquid Radioactive Waste Treatment System;
- Low Volume and Oily Waste (LVOW) Treatment System;
- Yard Drainage System;
- Cooling Tower Blowdown; and
- Sewage Treatment Plant.

3.3 SITE MAP

The PSEG Nuclear LLC facility occupies approximately 740 acres of land which includes 220 acres for Salem Generating Station, 153 acres for Hope Creek Generating Station, and 367 acres of uncommitted land. A color coded Site Plan (3 sheets), reflecting the current facility arrangement, was prepared by comparing the existing site plan with current aerial photography and a thorough site walkdown to determine and correct any observed discrepancies. A colored coded Drainage and Land Use Map (2 sheets) was prepared to identify the drainage elements and land use areas details which were completed by onsite inspection and verification of the existing Site Plan, survey, and data sources. In addition, a color coded DPRP Equipment Inventory Map was prepared to identify each potential stormwater pollution source by a numerical key. The detailed discussion of these maps is given in Part II, Sections 1.5 and 1.6, of the DPRP. The physical maps are presented under the Maps Tab of the DPRP.

The following points of interest are keyed on the Site Plan, and/or the Drainage and Land Use Map, and/or the DPRP Equipment Inventory Map:

- Locations of existing buildings and other permanent structures, including bulk storage tanks, drum storage areas, transfer areas, etc.;

- Paved areas including roads and parking lots;

- Surface water bodies located on or near the site, which receive or may receive stormwater from the site;

- Locations of all stormwater discharge points and outfalls;

- Locations of inlets, catch basins, manholes, berms, retention ponds, swales and ditches where stormwater, treated wastewater or non-contact cooling water discharges to the Delaware River;

- Stormwater drainage patterns shown by arrows on the Drainage and Land Use Map to illustrate the flow direction of each outfall;

- Locations where source materials are likely to be exposed to stormwater such as storage areas, palleted materials, outdoor handling areas, loading/unloading areas, process areas, waste storage areas, vehicle/equipment maintenance areas, vehicle/equipment fueling areas, hazardous waste storage areas, and access routes;

- Locations of existing stormwater structural control measures such as containments, berms, swales and ditches.

Presently, there are no existing or potential soil erosion concerns at the facility. However, PSEG Nuclear LLC has developed a procedure, NC.LR-AP.ZZ-0037(Z), Environmental Control Processes, to establish general criteria for soil erosion and sediment control. This procedure provides the guidance on how to implement the protective measures, such as straw bales or filter fabric fence, to protect the nearby catch basin(s) and/or soil stockpiles during construction. This procedure also ensures that a formal Soil Erosion and Sediment Control Plan is filed with, and approved by, the Salem County Soil Conservation District for construction that disturbs more than 5,000 square feet surface area of soil, or more than 1,000 square feet within 25 feet of a river bank. The intent of this procedure is to prevent soil erosion and the discharge of suspended solids to the Delaware River or its tributaries.

3.4 INDUSTRIAL ACTIVITIES AND ASSOCIATED POLLUTANTS

Salem and Hope Creek Generating Stations produce electrical power for the citizens of New Jersey and neighboring states. Both stations are classified as steam electric nuclear power plants which use nuclear fuel to generate electrical energy. Salem Generating Station consists of two pressurized water reactors (Units 1 and 2) with a net electrical capacity of approximately 1,100 megawatts per unit and one 36-megawatt gas combustion turbine generator (Unit 3). Hope Creek Generating Station consists of one boiling water reactor with a net electrical capacity of approximately 1,067 megawatts.

The facility is authorized by the NJDEP to discharge stormwater runoff, and liquid effluents such as treated wastewater/process water and non-contact cooling water through the NJPDES Permitting Program as discussed in Section 3.2.

The potential pollutant categories at the facility where source materials are likely to be exposed to stormwater are discussed in Section 3.1, and they include the vehicle fueling station, loading/unloading areas, maintenance shops, storage areas, process areas, aboveground storage tanks, hazardous waste storage areas, etc.

3.5 EXISTING MANAGEMENT PRACTICES

Presently, the areas in which hazardous and non-hazardous substances are routinely stored, processed, or transferred have been constructed and managed to prevent spills within an area of the facility from flowing, draining, or leaching onto the State lands and waters. Secondary containments and diversion systems at the facility are capable of blocking all probable routes by which spills could flow to State waters; the containments and systems are made of or lined with impermeable materials with sufficient capacities. The details of containments and diversion systems are discussed in Sections 3.1 and 3.2 of this SPPP, and are also discussed in Part II, Section 2.4, of the DPRP.

Equipment and portions of the facility are routinely inspected in accordance with NJAC 7:1E-2.14 to detect any leaks and discharges as described in Part II, Section 2.9, of the DPRP. The facility employs good housekeeping and maintenance programs to minimize the potential for accidental spills as described in Part II, Section 2.10, of the DPRP; any leaks and discharges will be detected by site personnel. PSEG Nuclear LLC maintains written Standard Operating Procedures (SOPs) for all phases of facility operations, maintenance, housekeeping, inspection and testing; these SOPs are periodically reviewed and revised in accordance with established procedures as discussed in Part II, Section 2.13, of the DPRP.

These existing management practices employed at the facility will:

- Eliminate contact of source materials with stormwater;
- Minimize or reduce pollutants from source materials; and
- Divert stormwater/treated wastewater and non-contact cooling water to the permitted outfalls.

SECTION 4: BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are measures used to prevent or mitigate pollution from any activities involving hazardous substances at the site. PSEG Nuclear LLC employs the following BMPs to achieve this goal.

4.1 NON-STORMWATER DISCHARGES

Non-stormwater effluents such as non-contact cooling water, cooling tower blowdown, treated domestic and process wastewater are discharged to the NJPDES permitted outfalls and monitored in accordance with NJPDES permit conditions as described in Section 3.2.

4.2 REMOVAL, COVER OR CONTROL OF INDUSTRIAL ACTIVITIES

Source materials at PSEG Nuclear LLC which are likely to be exposed to stormwater, have been used, stored, covered and/or handled in a manner, as described in Section 3.1, so as to minimize contact with stormwater discharged to the Delaware River.

PSEG Nuclear LLC's storage areas in which hazardous substances and waste are routinely produced, stored, held, processed, and/or transferred are designed and built pursuant to NJAC 7:1E-2.6 and 40 CFR 112, except as otherwise noted throughout the DPRP and approved by the NJDEP, so that any leak will be prevented from becoming a discharge.

4.3 STORMWATER DIVERSION

PSEG Nuclear LLC's yard drainage systems consist of underground piping, catch basins, inlets, and drainage ditches that intercept and convey the stormwater runoff to the permitted outfalls. Based on the site characteristics described in Part III, Section 8.3, of the DPRP, stormwater at the site mostly flows overland and/or through the yard drainage systems to the Delaware River. The details of the PSEG Nuclear LLC stormwater drainage systems are discussed in Part II, Section 2.4.2, of the DPRP.

At Salem Generating Station, the yard drainage systems consist of the North Yard Drainage System (DSN 487), the West Yard Drainage System (DSN 488), and the South Yard Drainage System (DSN 489). The North Yard Drainage System consists of site drainage from stormwater inlets, roof drains, a flood pump, and river water influx. The West Yard Drainage System consists of site drainage from stormwater inlets, roof drains, service water strainer backwash, and river water influx. The South Yard Drainage System consists of site drainage from stormwater inlets, and Nos. 1 and 2 oil/water skimmers which collect drainage from the switchyard, the drainage areas beneath the main and station power transformers, and the non-chemical sumps of the Turbine Building. Two additional stormwater collection systems (DSNs 490 and 491) serve only parking areas external to the station perimeter fencing and have been assigned no specific monitoring or reporting requirements. These areas are included in this Program for purposes of pollution prevention.

At Hope Creek Generating Station, the yard drainage systems consist of the North Yard Storm Drain (DSN 462A), the South Yard Storm Drain (DSN 463A), and the Perimeter Storm Drain (DSN 464). The North Yard Storm Drain System consists of site drainage from the parking lots, Material Center roof drain, loading ramp catch basins and underdrain sump, Auxiliary Boiler roof drain, Fire Water Pump House, No. 2 Reactor Building roof drain and runoff from other miscellaneous sources. The South Yard Drain System consists of site drainage from the Security Center roof drain and parking lot, Administration Building roof drain, Auxiliary Boiler roof drain, Turbine Building roof drain, service water valve pit dewatering sump, Reactor Building roof drain and Chlorine Structure drains. The Perimeter Storm Drain System consists of site drainage and runoff from the Access Road area, Administration Building roof drains and parking lots, Combo Shop roof drains, catch basins in undeveloped portions of the site, groundwater infiltration, and marsh areas adjacent to the Hope Creek site.

4.4 SPILL PREVENTION AND RESPONSE

The DPRP described in Section 2.3.1 covers the requirements of the NJDEP *Discharge Prevention, Containment, and Countermeasure/Discharge Cleanup and Removal (DPCC/DCR) Plans,* the USEPA *Facility Response Plan (FRP), Spill Prevention, Control, and Countermeasure (SPCC) Plan,* and *Hazardous Waste Contingency Plan (HWCP),* and the National Oceanic and Atmospheric Administration (NOAA) *Natural Resource Damage Assessment (NRDA) Protocol.*

The DPCC/DCR Plan satisfies the requirements as defined in NJAC 7:1E et seq. The spill/discharge prevention and response elements of the DPCC/DCR Plan are presented in Part II and Part III of the DPRP. The FRP satisfies the requirements as defined in 40 CFR 9 and 112 et seq., Oil Pollution Prevention, Non-Transportation-Related Onshore Facilities. The spill/discharge response elements of the FRP are presented in Part III of the DPRP. The SPCC Plan satisfies the requirements as defined in 40 CFR 112 et seq., Oil Pollution Prevention, Non-Transportation-Related Onshore

Facilities. The spill/discharge prevention and response elements of the SPCC Plan are presented in Part II and Part III of the DPRP.

4.5 GOOD HOUSEKEEPING

At PSEG Nuclear LLC, all petroleum-based materials, hazardous substances and hazardous wastes are maintained in containers, such as tanks and drums, or equipment suitable for their storage, use or processing, and are handled by trained personnel; this approach minimizes the potential for stormwater contamination due to improper handling, storage practices, or accidental spills. The details of a good housekeeping program maintained at PSEG Nuclear LLC are discussed in Part II, Section 2.10, of the DPRP. This good housekeeping program includes, but is not limited to, the following:

- Leaks and discharges of hazardous substances are cleaned up promptly upon detection; loose quantities of hazardous substances are not allowed to persist on ground, floors, walls, or equipment, or any other places within the facility;

- Hazardous substances and waste are kept in suitable containers which are compatible with the substances and waste stored therein and resistant to chemical attack by the substances and waste;

- Tanks, pipes, valves, glands, drums, or other equipment leaking hazardous substances will be promptly repaired, replaced or taken out of use following detection of a leak; a leak will be repaired at the earliest period in which either the process is not in operation or the particular unit is out of service, whichever occurs first;

- The hazardous material inventory presented in Part II, Tables II-1A, 1B, and 1C, of the DPRP is maintained routinely, and is updated at least annually;

- Nuclear Administrative Procedure, MA-AA-716-0026, delineates the housekeeping requirements and responsibilities to assure that good housekeeping practices are maintained at work areas and by employees;

- The Spill/Discharge Response Plan in Part III of the DPRP, and the Hazardous Waste Contingency Plan in Part II, Section 2.15, of the DPRP detail the procedures used for storage, pickup and disposal of hazardous waste materials;

- Leaking materials are captured and contained using drip pans, buckets, sorbent materials or pads, etc.; these devices are used to maintain dry and clean floors and ground surfaces;

- All secondary containment systems are maintained, whereby cracks, spalling, and deteriorating seals are repaired, and all trash, debris and vegetative growth is removed.

4.6 PREVENTIVE MAINTENANCE

PSEG Nuclear LLC has a Preventive Maintenance Program for timely and regular inspections and maintenance of stormwater management devices (such as cleaning oil/water separators, catch basins, drip pans, diversion systems, debris removal and vegetative growth controls), and facility equipment and operations (such as tanks, piping, containers, drums, and secondary containments). The details of this Program are discussed in Part II, Sections 2.4, 2.9, and 2.10, of the DPRP.

The PSEG Nuclear LLC Preventive Maintenance Program includes, but is not limited to, the following:

- Visual inspections are conducted daily for all in-use secondary containment and diversion systems which are not impermeable;

- Visual inspections are conducted at least once weekly for storage areas, secondary containments, diversion systems, and aboveground piping;

- Transformers without secondary containments undergo detailed inspections at least quarterly; area inspections occur at least weekly;

- Regular inspections of pipelines examine the general conditions of flange joints, expansion joints, valve gland packing and bodies, catch pans, pipeline supports, valve position locking (if applicable), and metal surface;

- A structural integrity engineering inspection of the secondary containment structures is conducted at least once a year for storage tanks and areas, process facilities, and transfer areas; the inspection consists of physical examination of all sides and the base of each containment structure for cracks, settlement, spalling, deterioration, and erosion, etc.; additional quarterly inspections track completeness of identifiable deficiencies as well as document emergent issues;

- Routine housekeeping and equipment inspections are conducted to detect leaks, spills and equipment failure; this includes surveillance inspection and testing of level devices, testing of pumps to ensure proper operation, and a check of the age and condition of absorbents;

- Flexible hoses used to transfer petroleum-based materials and hazardous substances and their couplings are visually inspected prior to each use;

- In general, preparation requirements during start-up or shut-down of process equipment will result in the inspection of process lines and in-facility piping for leaks, routing of leaks to a diversion drain, and ensuring prompt cleanup and repair of any defective components or equipment;

- A computerized tracking system, known as the SAP Corrective Action Program, is used to ensure inspections, preventive maintenance and/or repairs and upgrades are performed as scheduled;

- Standard Operating Procedures (SOPs) as defined in Part II, Section 2.13, of the DPRP, are used to ensure that all critical equipment and systems are tested and/or inspected as necessary;

- Records are kept for all inspections; these records document the inspection results, any problems found, and the recommended corrective actions via the SAP Corrective Action Program.

4.7 INSPECTION AND EVALUATION PROCESS

4.7.1 Regular Inspections

PSEG Nuclear LLC has an inspection program in place, as described in Section 4.6, for regular inspections of equipment, exposed source materials, and storage areas. Inspections are conducted by qualified and trained personnel. Inspection records are maintained on microfilm available at PSEG Nuclear LLC.

Records of these inspections are kept onsite. These records shall, at a minimum, consist of the following:

- Date of inspection;
- Inspector's name(s) and title(s);
- Location of and problem(s) identified;
- Any incidents such as leaks or accidental discharges, and any failures or breakdowns of structural BMPs;
- Steps taken to correct problem(s) and prevent recurrence.

4.7.2 Annual Inspections

PSEG Nuclear LLC will conduct annual inspections of the facility to assess all areas contributing to the stormwater discharge authorized by the permits. This will include an evaluation whether the SPPP complies with, and is implemented in accordance with, the permits, and whether additional measures are needed to meet the conditions of the permits.

A report summarizing the inspection and a stormwater certification will be prepared and submitted to the Bureau of Permit Management annually. Each stormwater inspection report will include, but not be limited to, the following:

- Date of inspection and name(s) and title(s) of the inspector(s);
- The certification to confirm that the facility is in compliance with the SPPP and the permits, and to identify any incidents of noncompliance; and
- The steps being taken to remedy the noncompliance and to prevent such incidents from recurring.

The records of each stormwater certification and inspection report will be maintained onsite for a period of five (5) years.

4.7.3 Evaluation Process

PSEG Nuclear LLC conducts an annual review of the DPRP which encompasses an integrated approach to spill/discharge prevention and response and stormwater pollution prevention. This review will include the evaluation of the SPPP for effectiveness, any flaws that may have developed, and maintenance that may be required. This evaluation process also includes the regular and annual inspections and reporting as described in Sections 4.7.1 and 4.7.2.

SECTION 5: BMPs IMPLEMENTATION SCHEDULE

PSEG Nuclear LLC has already implemented the Best Management Practices (BMPs) as described in Section 4 to eliminate stormwater contamination associated with facility operations. Presently, there are no planned upgrades or improvements for the SPPP.

SECTION 6: GENERAL PLAN REQUIREMENTS

6.1 SPPP CERTIFICATIONS

I certify that the Stormwater Pollution Prevention Plan (SPPP) has been reviewed and updated, and a working copy retained at the facility in accordance with Part IV-RF of NJPDES/DSW Permits No. NJ0005622 (Salem) and No. NJ0025411 (Hope Creek) and that this SPPP will be fully implemented at the facility in accordance with the terms and conditions of those permits. A copy of the signed SPPP will be sent by certified mail to the NJDEP, Southern Regional Office, to the NJDEP, Division of Water Quality, Point Source Permitting - Region II, to the NJDEP, Division of Water Quality, Nonpoint Pollution Control, and to the NJDEP, Central File Room.

______________________________ ______________________

Robert Braun Date
Site Vice-President - Salem

______________________________ ______________________

George Barnes Date
Site Vice-President - Hope Creek

6.2 SPPP LOCATION AND PUBLIC ACCESS

The SPPP and the preventive maintenance and inspection records are maintained onsite. Authorized regulatory agency personnel may gain access to these documents by contacting Salem Radwaste and Environmental Supervisor at (856) 339-2686 or Hope Creek Radwaste and Environmental Supervisor at (856) 339-5411 during normal working hours. Five working days' notice should be given prior to actually visiting the site to allow PSEG Nuclear LLC the time to schedule escort personnel. This five-day request is not necessary during emergency conditions, when immediate access may be needed. However, Regulatory Affairs should always be contacted, whether visits/inspections are routine or emergency. During off hours, the Operations Superintendent (OS) at Salem or Hope Creek Generating Station should be contacted. Telephone numbers of these personnel are listed under the Telephone Numbers Tab of the DPRP.

Copies of the SPPP are submitted to the following regulatory agencies:

NJDEP
Division of Water Quality
Chief
Point Source Permitting - Region II
P.O. Box 029
Trenton, NJ 08625-0029

NJDEP
Division of Water Quality
Nonpoint Pollution Control
P.O. Box 029
Trenton, NJ 08625-0029

NJDEP
Central File Room
401 East State Street
P.O. Box 420
Trenton, NJ 08625-0420
Attn: Chief

NJDEP
Southern Regional Office
1 Port Center
2 Riverside Drive
Suite 201
Camden, NJ 08103

SECTION 7: SPECIAL REQUIREMENTS

7.1 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW STATUTE

The PSEG Nuclear LLC Emergency Planning and Community Right-to-Know Statute is described in Part I, Section 1.1.4, of the DPRP. Notification requirements for reportable spills are discussed in Part III, Section 5, of the DPRP.

7.2 SPCC, DPCC AND DCR PLANS

PSEG Nuclear LLC provides a comprehensive Discharge Prevention and Response Program (DPRP), as described in Section 2.3, that incorporates the requirements of the SPCC Plan, DPCC and DCR Plans. Most of the SPCC Plan and DPCC/DCR Plans are discussed in Part II and Part III of the DPRP.

7.3 CONSTRUCTION ACTIVITIES

The SPPP will be amended whenever there is any change in facility design, construction, operation or maintenance that will adversely affect the effectiveness of the SPPP and the terms and conditions of the permits. The SPPP will also be amended whenever required due to a regulatory or procedural change, SPPT member change, or significant change in the onsite storage location of the potential pollutant source materials. The amendment(s) or the revised SPPP will be submitted to the appropriate regulatory agencies for approval.

Stormwater discharges associated with construction activity will be controlled in accordance with The Soil Erosion and Sediment Control Act of 1975 as amended, (NJSA 4:24-39 et. seq.). Soil Erosion and Sediment Control Plans, which meet State Soil Conservation Committee standards, will be submitted to and certified by the Salem Soil Conservation District. The Salem Soil Conservation District will inspect the worksite and ensure compliance with the certified plans.

All small construction activities, as defined in NJAC 7:14A-1.2, must be authorized by NJDEP and receive a NJPDES General Permit (No. NJG0088323) for stormwater discharges associated with construction activities. In accordance with the permit, annual reports will be submitted and routine inspections will be conducted and documented to identify areas contributing to stormwater discharge. Areas contributing to stormwater discharge will be evaluated whether the Stormwater

Pollution Prevention Plan identified within the General Permit is being properly implemented and maintained, or whether additional measures are needed to implement the SPPP.

Salem Generating Station and Hope Creek Generating Station Pollution Minimization Plan for Polychlorinated Biphenyls in the Delaware Estuary

PSEG Nuclear LLC

January 2008

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1 Good Faith Commitment

Rule Section 40.3.9.E.1

PSEG Nuclear, LLC (PSEG Nuclear) makes a good faith commitment to implement the Pollutant Minimization Plan (PMP) as outlined herein. If the results of implementation indicate Salem Generating Station (SGS) or Hope Creek Generating Station (HCGS) is a source of Polychlorinated Biphenyls (PCBs) to the Delaware Estuary, then PSEG Nuclear will make a good faith commitment to reduce discharges of PCBs through the PMP process in accordance with the Delaware River Basin Commission (DRBC) PMP Regulations (in DRBC Water Quality Regulations Section 4.30.9 and at http://www.state.nj.us/drbc/PMPrule-May05.pdf).

Robert Braun - Salem Site Vice President	**Date**
George Barnes - Hope Creek Site Vice President	**Date**

1.1 Plan Summary

The PSEG Nuclear PCB PMP provides the information and bases for ensuring potential discharges of PCBs are minimized or eliminated at the facility. The comprehensive facility evaluation of potential sources of PCBs and low-level analyses of effluents for PCB congeners, in conjunction with the comprehensive Discharge Prevention and Response Program (DPRP) implemented at the facility, provide the bases for the PMP.

Although no TSCA regulated levels of PCBs are at the facility, the equipment identified during the facility evaluation as containing a measurable PCB concentration is enumerated and DPRP spill/leak prevention design components are verified. The PSEG Nuclear program of eliminating components that contain any level of PCBs during replacement or major refurbishment is continued under the PMP to further minimize any potential for a discharge of PCBs. Periodic sampling and analysis of effluents will continue to determine if there is any measurable change in the concentration or speciation of PCBs in these effluents. When sufficient analyses have been completed, statistical assessments of the concentration and speciation variability will be performed to attempt to differentiate external anthropogenic sources from any potential facility source.

This PMP, in conjunction with the DPRP, will ensure any potential sources of PCBs at the facility will not result in a discharge of PCBs to the Delaware Estuary. The analytical information developed will provide the bases to confirm discharges of PCBs are minimized or eliminated from facility activities.

2 Discharger / Facility Contact

Rule Section 40.3.9.E.2

Salem Facility Contact:	Clifton Gibson
	Chemistry – Radwaste, Environmental Supervisor
Phone Number:	(856) 339-2686
Telefacsimile Number:	(856) 339-2819
Alternate Salem Contact:	Luis Cataldo
	Environmental Specialist
Phone Number:	(856) 339-2307
Telefacsimile Number:	(856) 339-2819
Hope Creek Facility Contact:	Erin West
	Chemistry – Radwaste, Environmental Supervisor
Phone Number:	(856) 339-5411
Telefacsimile Number:	(856) 339-3546
Alternate Hope Creek Contact:	Chris White
	Environmental Specialist
Phone Number:	(856) 339-3301
Telefacsimile Number:	(856) 339-3546

2.1 PCB Pollutant Minimization Plan Implementation Team

The PCB Pollutant Minimization Plan (PMP) will be implemented and maintained by individuals currently involved in managing compliance with the stations' New Jersey Pollution Discharge Elimination System (NJPDES) permits and pollution prevention activities. Various station personnel - identified in Part III, Section 2, Discharge Response Personnel, of the *Discharge Prevention and Response Program* (DPRP) - may implement various parts of the PMP depending on the nature of the need.

The principal members and their associated responsibilities are as follows:

1. **Chemistry - Radwaste and Environmental Supervisor**
The Chemistry Departments of SGS and HCGS maintain day-to-day responsibility for the oversight of their respective NJPDES permit, and have been assigned the responsibility of implementing the PMP. The primary responsibilities are coordinating and ensuring conduct of the inspections, preventive maintenance and good housekeeping practices that are outlined in the PMP. In addition, the Chemistry Departments will provide expert assistance in developing policies and Best Management Practices (BMPs) for implementing and enforcing the PMP, will ensure that applicable reports required by the PMP are submitted, and will manage resources that are assigned to the PMP.

2. **Chemistry Program Supervisor – NJPDES**

   The Chemistry Departments of SGS and HCGS provide day-to-day oversight of the NJPDES Compliance Program under the authority of the Operations Manager and the Chemistry, Radwaste and Environmental Manager. The Chemistry Program Supervisor – NJPDES is responsible for direct coordination and implementation of the conduct of the inspections, preventive maintenance and good housekeeping practices. The Chemistry Departments perform daily walk downs of the respective systems at SGS and HCGS.

3. **PSEG Nuclear Design Engineering – Mechanical/Structural**
   PSEG Nuclear design engineering organizations provide support for the proper evaluation of facility structural controls. Representatives from SGS's and HCGS's engineering organizations perform periodic inspections for integrity. Any engineering feature that is found deficit will be evaluated by Nuclear Design Engineering for development of a corrective action plan within the processes within the nuclear facility for the specific type of deficiency identified.

4. **PSEG Nuclear Maintenance**
   PSEG Nuclear's maintenance organizations provide support for the proper evaluation of facility maintenance and housekeeping and implementing the corrective and/or preventative measures as appropriate. The SGS and HCGS organizations also perform required weekly inspections as part of the NJDEP approved DPRP.

2.2 Discharge Prevention and Response Program

As noted in Section 2.1, PSEG Nuclear has developed a comprehensive *Discharge Prevention and Response Program* for SGS and HCGS (PSEG Nuclear LLC, 2005a, 2005b). The DPRP incorporates the requirements of the NJDEP *Discharge Prevention, Containment, and Countermeasure/Discharge Cleanup and Removal (DPCC/DCR) Plans,* the USEPA *Facility Response Plan (FRP), Spill Prevention, Control, and Countermeasure (SPCC) Plan,* and *Hazardous Waste Contingency Plan (HWCP),* and the National Oceanic and Atmospheric Administration (NOAA) *Natural Resource Damage Assessment (NRDA) Protocol.* A copy of the DPRP is maintained and available for review at each facility. The specific actions identified in the DPRP will supplement the actions proposed in this PMP.

3 Facility Description

Rule Section 40.3.9.E.3

3.1 General Facility Identification

This PMP has been developed for SGS and HCGS. SGS and HCGS are steam-electric nuclear power plants that use nuclear fuel to generate electrical energy. SGS has a net-rated capacity of 2,384 megawatts-electric (Mwe). HCGS has a net-rated capacity of 1139 Mwe. The Standard Industrial Classification (SIC) Code for the two stations is 4911; the North American Industrial Classification System (NAICS) Code for the two stations is 221113.

SGS is co-owned by PSEG Nuclear and Exelon Corporation (Exelon). PSEG Nuclear owns 57.41 percent of SGS. Exelon owns the remaining interest. PSEG Nuclear owns HCGS. PSEG operates SGS and HCGS while Exelon manages the stations' plant operations pursuant to an agreement between PSEG Nuclear and Exelon. The corporate offices of PSEG Nuclear are located at:

> 80 Park Plaza
> Newark, New Jersey 07101
> (973) 430-7000

The corporate offices of Exelon are located at:

> 37th Floor, 10 South Dearborn Street
> P.O. Box 805398
> Chicago, Illinois 60680-5398
> (800) 483-3220

SGS and HCGS are located in the southern region of the Delaware River Valley on Artificial Island in Lower Alloways Creek Township, Salem County, New Jersey (See Figure 3.1). Artificial Island is on the east shore of Delaware Bay at approximately River Mile 50. (River Mile "0" is at the mouth of the Delaware Bay with River Miles increasing upstream). The two stations are approximately 18 miles south of Wilmington, Delaware, 30 miles southwest of Philadelphia, Pennsylvania, and 7.5 miles southwest of Salem, New Jersey. Additional information for locating and contacting SGS and HCGS is:

Name:	Salem Generating Station Hope Creek Generating Station
Salem Mailing Address:	P.O. Box 236 M/C S07 Hancocks Bridge, New Jersey 08038
Hope Creek Mailing Address:	P.O. Box 236 M/C H15 Hancocks Bridge, New Jersey 08038

Location:	PSEG Nuclear LLC Alloway Creek Neck Road Lower Alloways Creek Township	
Tax Lot and Block:	Lots: 4, 4.01, 5, and 5.01; Block: 26	
Coordinate Centroid (NJ):	Salem Station Hope Creek Station	N 230, 436.38 / E 1, 754, 670.51 N 232, 184.40 / E 1, 754, 148.80
Geodetic Position:	Salem Station Hope Creek Station	N 39° 27' 46" / W 75° 32' 08" N 39° 28' 03" / W 75° 32' 15"

SGS and HCGS occupy 740 acres of land on Artificial Island. SGS occupies 220 acres. HCGS occupies 153 acres. The remaining 367 acres are uncommitted. The occupied area includes containment buildings (which house the nuclear reactors), turbine buildings, a cooling tower, a simple cycle combustion turbine unit (which uses low sulfur distillate fuel), office and equipment buildings and structures, electrical switchyards, parking areas, roads, and equipment laydown areas. Riprap and bulkheads protect the shore from erosion. Authorized regulatory agency personnel may gain access to SGS and HCGS, and review engineering plans and other documents required by various environmental regulations, by contacting the Chemistry - Radwaste and Environmental Supervisors during normal working hours.

3.2 Process Description

Salem Generating Station

Salem Generating Station consists of two nuclear-powered pressurized water reactors, a single cycle combustion turbine that uses fuel oil, and ancillary equipment that support Salem's operations. The ancillary equipment includes auxiliary boilers, emergency diesel generators, fire-pumps, fuel storage tanks and air compressors.

Electricity at the Station is generated by a steam cycle. The essential components of this cycle are the reactor (to make heat to produce high-pressure steam), a turbine-generator (to convert steam to mechanical motion that turns turbines to produce electricity), a steam condenser (to condense the steam as it leaves the turbines), and pumps and piping (to return the steam condensate to the reactor).

The Station withdraws water from on-site groundwater wells and water from the Estuary to support its operations. The wells provide water that is used for drinking, firefighting and other sanitary purposes. The water from the Estuary is used strictly for non-contact cooling. A service water system consisting of 12 pumps (10,875 gpm/pump) provides non-contact cooling water for auxiliary equipment. A main cooling water system consisting of 12 intake pumps (175,000 gpm/pump) provides water for the Station's once-through cooling water system.

During peak demands, the Station can generate an additional 52 MW of electricity with a combustion turbine generator. The combustion turbine, Unit 3, is housed in a separate building south of the power plant building, where Units 1 and 2 are located.

The dates of initial operation for the units at SGS are as follows:

- Unit 1 - June 1977
- Unit 2 - October 1981
- Unit 3 - December 1976

Hope Creek Generating Station

Hope Creek Generating Station consists of one nuclear-powered boiling water reactor and ancillary equipment that support its operations. The ancillary equipment includes service water pumps that provide water for cooling, a natural draft cooling tower (HCCT), a safety auxiliary cooling system (SACS) and reactor auxiliary cooling system (RACS), auxiliary boilers, emergency diesel generators, fire-pumps, fuel storage tanks and an air compressor.

Electricity at the Station is generated by a steam cycle. The essential components of this cycle are the reactor (to make heat to produce high-pressure steam), a turbine-generator (to convert steam to mechanical motion that turns turbines to produce electricity), a steam condenser (to condense the steam as it leaves the turbines), and pumps and piping (to return the steam condensate to the reactor).

The Station withdraws water from on-site groundwater wells and water from the Estuary to support its operations. The wells provide water that is used for drinking, firefighting and other sanitary purposes. The water from the Estuary is used strictly for cooling equipment.

The Station uses a closed loop cooling system (Service Water System) to dissipate heat from the auxiliary equipment. Service water is withdrawn from the Estuary to supply the heat exchangers. The entire flow then proceeds to the HCCT and replaces water that HCCT loses to the atmosphere as evaporation, small water droplets ("drift") that escape to the atmosphere, and a small percentage of the circulating water that is discharged back to the Estuary ("blowdown"). The water from the service water to HCCT is commonly called "makeup." Together, the blowdown and makeup flows limit the increase in the concentrations of solids in the circulating water flow that occurs as a result of evaporation.

The date of initial operation for the units at HCGS is:

- **Unit 1 - December 1986**

3.3 Discharge Permits and Permit Numbers that Relate to Releases of PCB

SGS and HCGS are existing steam-electric generating facilities. As such they are subject to the federal effluent guidelines at 40 CFR § 423, which include effluent limitations on PCBs. Section 40.30.9.E.3.a of DRBC's Water Quality Regulations requires a PMP to list "all local, state and federal discharge permits and permit numbers for permits that relate to releases of the pollutant", which is PCBs for this PMP. Among its environmental permits, SGS and HCGS have only the following water permits that relate to the release of PCBs:

- Salem Generating Station
    - NJPDES Discharge to Surface Water Permit: NJ0005622
- Hope Creek Generating Station
    - NJPDES Discharge to Surface Water Permit: NJ0025411

SGS and HCGS discharge wastewater to the Delaware Estuary through permitted outfalls. Each outfall and internal monitoring point has been assigned a Discharge Serial Number (DSN) and is included in the station's NJPDES permit. The NJPDES permits contain effluent limits and monitoring requirements that are dependent on the nature of the processes affecting the quality of the discharge. Figure 3.2 is a water balance diagram for SGS. Figure 3.3 is the water balance diagram for HCGS.

Most of the discharge from SGC and HGC is water that is withdrawn from the Delaware Estuary and used for primary and secondary non-contact cooling. Other minor discharges include stormwater runoff, and flows from demineralizer waste and drains, oil-water separators, sumps, and sanitary wastewater.

3.4 Raw Material Potentially Containing PCBs

The only raw material potentially containing PCBs that SGS and HCGS use in conjunction with generating electricity is dielectric fluid that is contained in transformers, oil-containing breakers, capacitors and switches. All other raw materials (namely, fuel oil, and other chemicals for conditioning and treating wastewater flows) do not contain PCBs. The dielectric fluid provides cooling and electrical insulation. Oil-filled electrical equipment is inspected weekly or quarterly for evidence of leaks. In addition, oil-filled electrical equipment-containing PCBs is also inspected quarterly per 40 CFR 761.

3.5 Waste from Other Facilities

SGS and HCGS do not accept wastes that are generated off-site.

3.6 Facility Map

Figure 3-4 is a detailed site drawing of SGS. The site plan shows the locations of the outfalls and storage areas for various materials. Appendix B describes the wastewater at each outfall and internal monitoring point.

Figure 3-5 is a detailed site drawing of HCGS. The site plan shows the locations of the outfalls and storage areas for various materials. Appendix C describes the wastewater at each outfall and internal monitoring point at HCGS.

PSEG Nuclear carefully reviewed the equipment at SGS and HCGS that use water from the Estuary to determine if any piece of equipment could potentially add PCBs (Furnari, 2005). A copy of this review is provided in Appendix A. PSEG Nuclear concluded that equipment used for primary and secondary cooling are not sources of PCBs because the hydraulic design of the cooling water and service water system prevents any oils that may inadvertently leak from the equipment, including any PCBs they might contain, from mixing with the cooling water and service water flows. In addition, PSEG Nuclear concluded wastewater from boilers that was initially treated to remove impurities (namely, demineralized) does not have PCBs. The outfalls that DRBC and PSEG Nuclear agreed to include in the sampling program for the Stage 2 TMDL are identified in Tables 3.1 and 3.2.

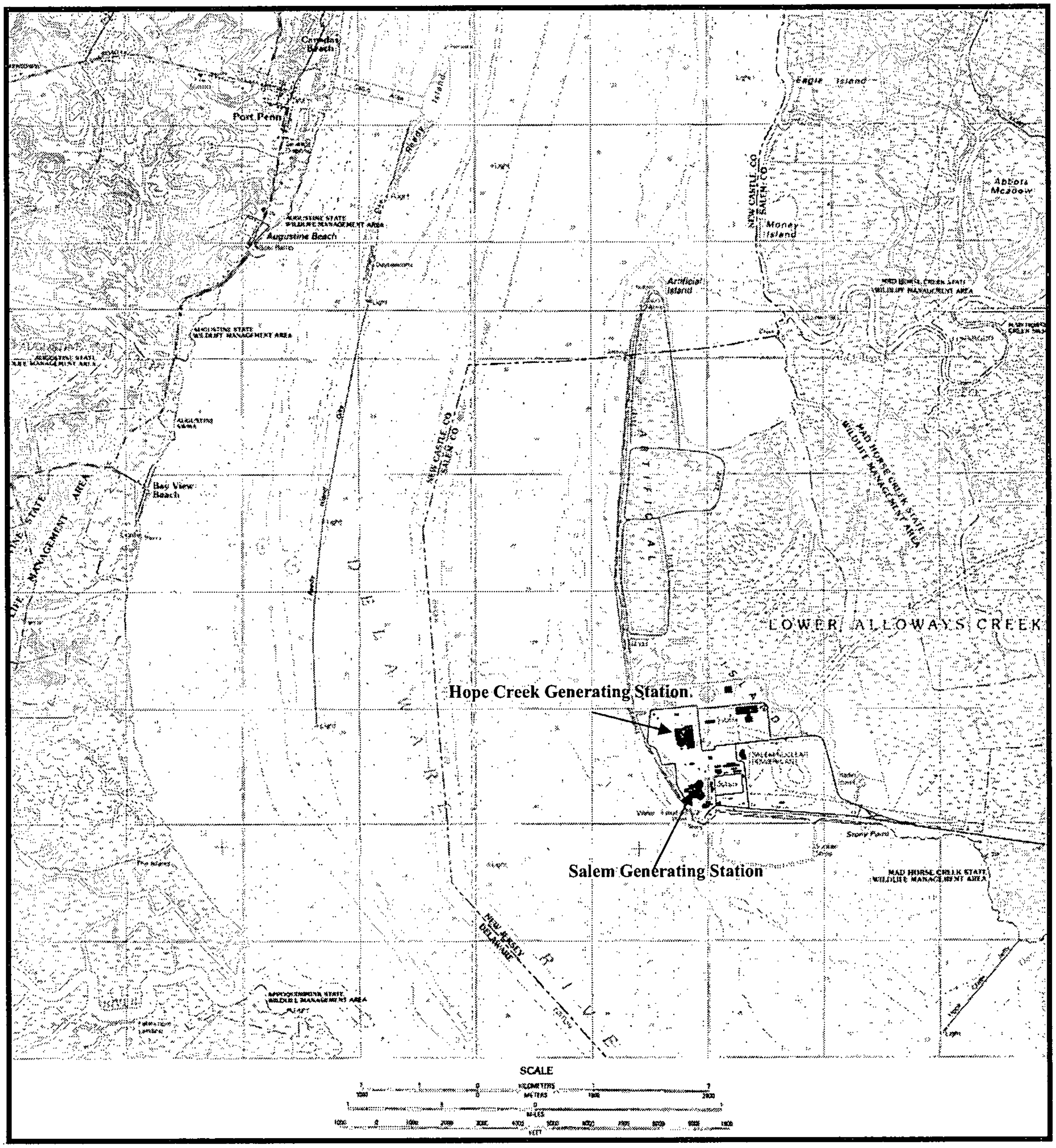

Figure 3.1 USGS Map with Locations of SGS and HCGS

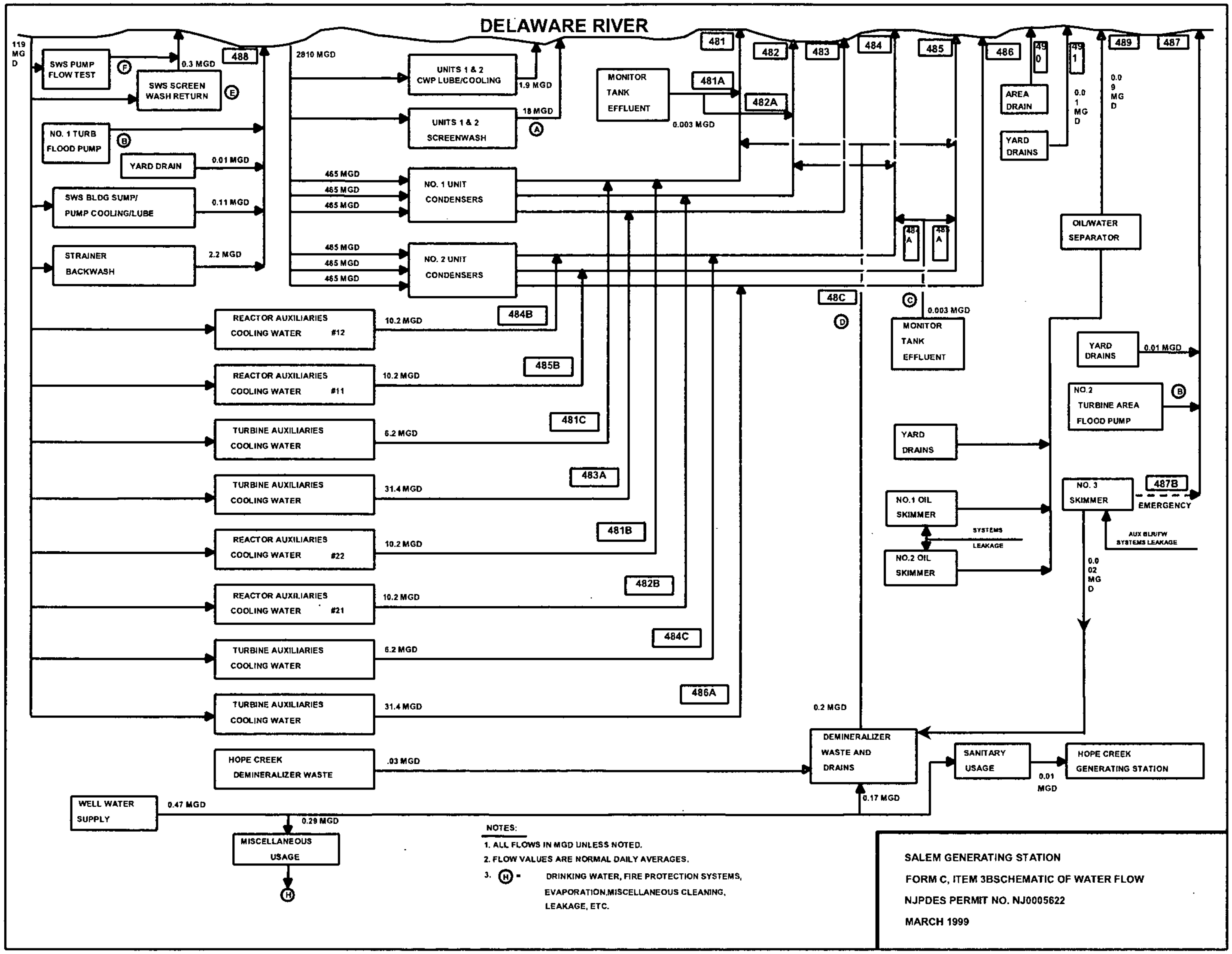

Figure 3.2 Water Balance Diagram for Salem Generating Station

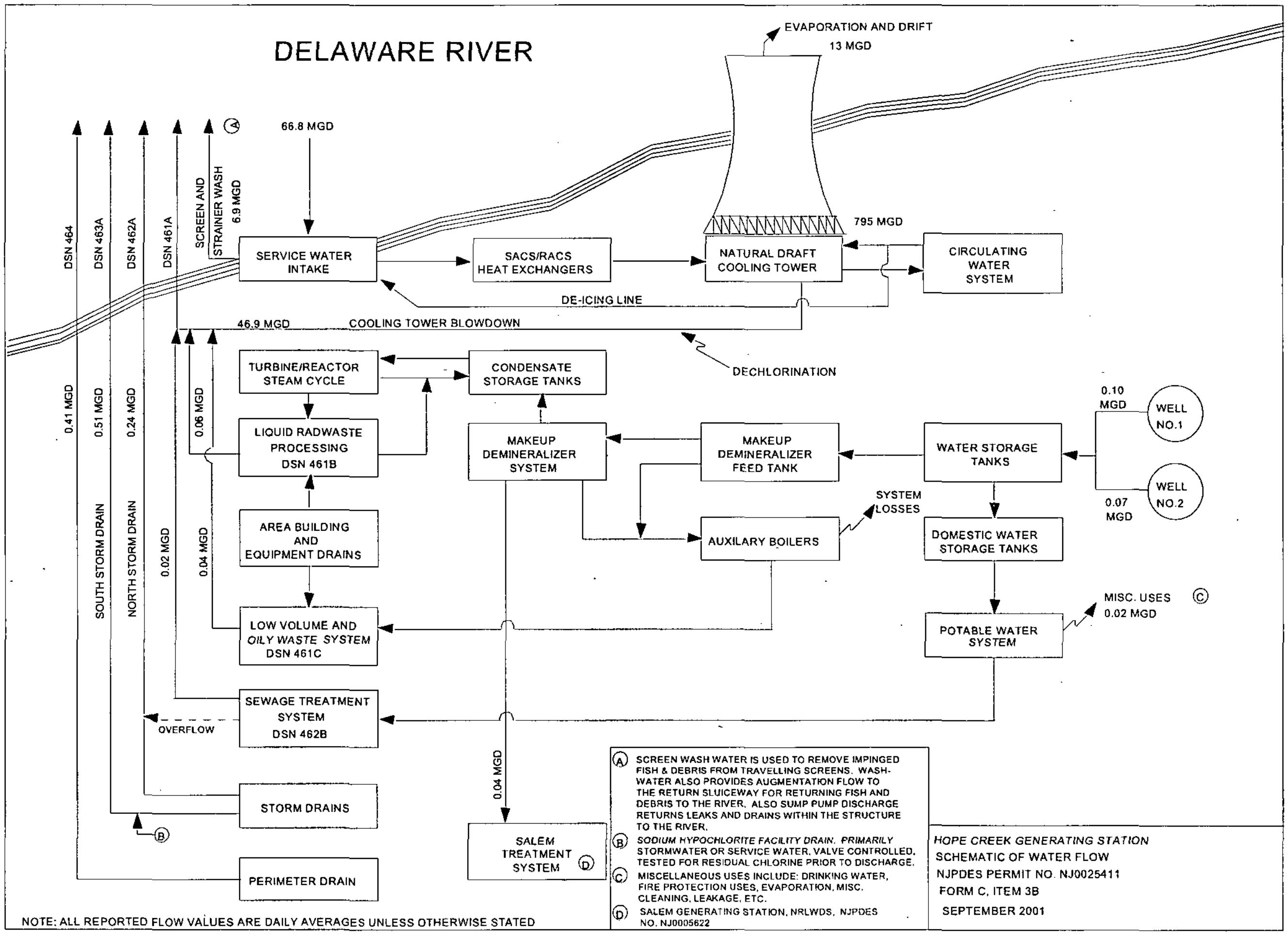

Figure 3.3 Water Balance Diagram for Hope Creek Generating Station.

Table 3.1
Permitted Outfalls at SGS

DSN[1]	Wastewater	Latitude	Longitude
48C	Demineralized Waste and Drains	Internal	Internal
481A	Monitor tank effluent	Internal	Internal
481B	Reactor auxiliaries cooling water	Internal	Internal
481C	Turbine auxiliaries cooling water	Internal	Internal
481	No. 1 Unit Condenser, DSN 481A, DSN 481B, DSN 481C, DSN 48C	37°27'38"	75°32'16"
482A	Monitor tank effluent	Internal	Internal
482B	Reactor auxiliaries cooling water	Internal	Internal
482	No. 1 Unit Condenser, DSN 482A, DSN 482B, DSN 48C	37°27'38"	75°32'16"
483A	Turbine auxiliaries cooling water	Internal	Internal
483	No. 1 Unit Condenser, DSN 483A	37°27'38"	75°32'16"
484A	Monitor tank effluent	Internal	Internal
484B	Reactor auxiliaries cooling water	Internal	Internal
484C	Turbine auxiliaries cooling water	Internal	Internal
484	No. 2 Unit Condenser, DSN 484A, DSN 484B, DSN 484C, DSN 48C	37°27'38"	75°32'16"
485A	Monitor tank effluent	Internal	Internal
485B	Reactor auxiliaries cooling water	Internal	Internal
485	No. 2 Unit Condenser, DSN 485A, DSN 485B, DSN 48C	37°27'38"	75°32'16"
486A	Turbine auxiliaries cooling water	Internal	Internal
486B	Reactor auxiliaries cooling water	Internal	Internal
486	No. 2 Unit Condenser, DSN 486A, DSN 486B	37°27'38"	75°32'16"
487B	No. 3 skimmer	Internal	Internal
487	Yard drains, turbine area flood pump, and DSN 487B	39°27'46"	75°32'17"
488	Yard drain, flood pump, service water sump, pump cooling/lube, screen backwash	37°27'41"	75°32'12"
489	Oil water separator	37°27'40"	75°32'00"
490	Area drain	37°27'40"	75°31'52"
491	Yard drains	37°27'40"	75°31'50"

Table 3.2
Permitted Outfalls at HCGS

DSN[1]	Wastewater	Latitude	Longitude
DSN 461C	Low volume and oily water waste system	Internal	Internal
DSN 461B	Liquid radwaste processing	Internal	Internal
DSN 461A	Cooling tower blowdown	39°28'14"	75°32'34"
DSN 462B	Sanitary wastewater from HCGS and SGS	Internal	Internal
DSN 465A	North storm drain	39°28'14"	75°32'34"
DSN 463A	South storm drain	39°27'54"	75°32'23"
DSN 464	Perimeter drain	39°28'15"	75°32'34"

[1] **DSNs in bold-italic were approved by DRBC for inclusion in the Sampling Program for the Stage 2 TMDL**

4 Known Sources

Rule Section 40.3.9.E.4

SGS and HCGS have no known internal sources that contribute PCBs to the Delaware Estuary. However, there are two known external sources of PCBs that contribute PCBs to each station: atmospheric deposition and the Delaware Estuary itself.

Air deposition of PCBs has been demonstrated by the scientific community of New Jersey. Van Ry et al. (2002) provide estimates of "wet" and "dry" weather fluxes of PCBs at seven urban and background sampling sites across New Jersey. These estimates indicate that concentrations of PCBs exist in New Jersey rainfall and stormwater runoff, and exceed applicable water quality criteria by several orders of magnitude. Therefore, the discharges from the oil-water separators, yard drains, and building drains at SGS and HCGS have a stormwater component that contains PCBs. The actual annual contribution by atmospheric deposition of PCBs by air at either SGS or HCGS is unknown. While the stormwater Best Management Practices (BMPs) reduce the discharge of suspended solids, surface runoff and the pollutants they carry, the BMPs are not designed or intended to provide treatment that results in concentrations of PCBs that meet water quality criteria.

A second source of PCBs in discharges from SGS and HCGS is the Estuary. Both stations withdraw water from the Estuary primarily for non-contact cooling. The water is returned to the Estuary. Ambient concentrations of PCBs in Zone 5 of the Estuary exceed the water quality criteria by several orders-of-magnitude (EPA, 2003). Therefore, PCBs are present in any discharge that contains untreated river water. As noted in Section 3.6 of this PMP, PSEG Nuclear carefully reviewed the equipment at SGS and HCGS that use water from the Estuary to determine if any piece of equipment could potentially add PCBs (Furnari, 2005).

5 Potential Sources

Rule Sections 40.3.9.E.5 and 40.3.9.E.6

The only raw material potentially containing PCBs that SGS and HCGS use in conjunction with generating electricity is dielectric fluid that is contained in numerous transformers, oil-containing breakers, and switches. The dielectric fluid provides cooling and electrical insulation. Various pieces of electric equipment at SGS and HCGS contain PCBs in amounts ranging from less than 0.01 lbs to approximately 0.25 lbs of PCBs. Table 5.1 is an inventory of the equipment known to contain PCBs. The amount of PCBs in any single piece of equipment is typically less than 0.02 lbs. In the event of an equipment failure and the release of fluids (including those with PCBs), SGS and HCGS would implement the spill response and cleanup activities described in the DPRP (PSEG Nuclear, 2005a, 2005b) to prevent the spill from reaching the Delaware Estuary.

All equipment potentially containing PCBs has been tested and been documented in the master inventory. As indicated in Table 5.1, the concentrations of PCBs in the equipment containing PCBs are all below 50 ppm. Thus, pursuant to Environmental Protection Agency regulations concerning PCBs at 40 CFR Pt. 761, the equipment is not "PCB-contaminated" nor "PCB-Containing Electrical Equipment."

PSEG Nuclear routinely inspects the equipment in Table 5.1, which is a potential source of PCBs, as part of its DPRP. Oil-filled electrical equipment is inspected weekly and/or quarterly for evidence of leaks. In addition, oil-filled electrical equipment-containing low levels of PCBs (Non TSCA regulated as per paragraph above) is also inspected quarterly per the DPRP. Written checklists are used for each inspection and are maintained at the stations.
There are four potential pathways for PCBs from the equipment in Table 1 to the Estuary: (1) the stormwater drainage collection systems and the conveyances to the low volume oily waste system at HCGS: and (2) the stormwater drainage collection systems and the pipes from the oil-water separators at SGS, which includes the drainage collection system in the SGS turbine buildings; (3) the SGS waste treatment system which receives demineralizer and other chemical wastes as well as specific turbine building sumps; and, (4) the sewage treatment plant located at HCGS. Discharges that flow along these pathways have designated sampling locations (namely, DSN 489 which is just downstream of the oil-water separator at SGS; DSN 461C which is just downstream of the oil-water separator at HCGS; DSN 462B which is just downstream of the sewage treatment plant at HCGS; and DSN 48C which is just downstream of the demineralizer waste and drain sump at SGS) to determine the concentrations of certain pollutants.

Another potential source of PCBs that is not related to the generation of electricity at SGS and HCGS is the sanitary wastewater (or sewage treatment) system at HCGS. This system is designed to receive sanitary wastewater from shower rooms and rest rooms only and, therefore, is not expected to contain PCBs in significant concentrations. However, DRBC has evidence that PCBs are often present in this type of discharge. Recent measurements of the PCBs in the effluent of HCGS Sewage Treatment System indicate one or more "unknown" sources of PCBs to the sanitary wastewater flow.

Table 5.1
Inventory of Equipment Containing PCBs at Non-regulated Levels

Equipment	Unit	PCB Conc. (PPM)	Volume (gal)	Total Lbs PCBs
Substation 6 Temp. Yard Transformer (H055)	Hope Creek	34	345	0.09
Substation 1 Temp. Yard Transformer (H057)	Hope Creek	49	345	0.13
Substation 4 Temp. Yard Transformer (H060)	Hope Creek	36	345	0.10
13kv 4000amp Circuit breaker (H069)	Hope Creek	2	1208	0.02
13kv 4000amp Circuit breaker (H070)	Hope Creek	2	1208	0.02
13kv 4000amp Circuit breaker (H071)	Hope Creek	2	1208	0.02
13kv 4000amp Circuit breaker (H072)	Hope Creek	5	1208	0.05
Substation 8 Transformer (H100)	Common	4	250	0.01
Substation 9 Temp. Yard Transformer (H056)	Hope Creek	4	250	0.01
No. 11 Station Power Transformer (S092)	Salem 1	5	1000	0.04
No. 21 Station Power Transformer (S094)	Salem 2	4	1000	0.03
Substation No. 1 (S098)	Salem 1	3	60	0.00
Substation No. 1 (S099)	Salem 1	6	70	0.00
Substation No. 1 (S100)	Salem 1	3	60	0.00
Substation No. 1 (S101)	Salem 1	4	70	0.00
Substation No. 1 (S102)	Salem 1	5	70	0.00
Substation No. 2 (S104)	Salem 1	14	70	0.01
Substation No. 2 (S105)	Salem 1	9	70	0.00
Substation No. 2 (S106)	Salem 1	11	70	0.01
Substation No. 2 (S107)	Salem 1	3	80	0.00
Substation No. 2 (S109)	Salem 1	10	70	0.01
Substation No. 2 (S110)	Salem 1	9	70	0.00
Substation No. 5 (S115)	Salem 2	8	70	0.00
Substation No. 5 (S116)	Salem 2	3	70	0.00
Substation No. 5 (S117)	Salem 2	12	70	0.01
Substation No. 5 (S118)	Salem 2	21	70	0.01
Substation No. 5 (S119)	Salem 2	38	70	0.02
Substation No. 5 (S120)	Salem 2	3	70	0.00
Substation No. 5 (S122)	Salem 2	4	70	0.00
Substation No. 5 (S123)	Salem 2	3	70	0.00
No. 24 Station Power Transformer (S142)	Salem 2	3	3500	0.08
Spare Station Power Transformer (S148)	Common	3	3500	0.08
Substation 2 Temporary (H058)	Hope Creek	15	345	0.04

Table 1 (continued)
Inventory of Equipment Containing PCBs at Non-regulated Levels

Equipment	Unit	PCB Conc. (PPM)	Volume (gal)	Total Lbs PCBs
Substation 3 Temporary (H059)	Hope Creek	7	345	0.02
Substation 5 (H061)	Hope Creek	15	345	0.04
Station Power Transformer (SH013.8)	Common	9	3500	0.25
14kv No. 1 Aux Pwr Xfmr (S063)	Salem 1	3	345	0.01
Sum of PCBs (lbs)				1.21

6 Previous Minimization Activities

Rule Section 40.3.9.E.7

Since promulgation of the initial Toxic Substance Control Act ("TSCA") rules by USEPA in 1978, PSEG has developed and implemented policies and procedures to identify, manage and control PCBs at its facilities. In addition, through policies and procedures designed to comply with water discharge permits and spill prevention regulations, PSEG has acted to minimize the release of pollutants, including PCBs, to the environment.

Specific to TSCA, PSEG Nuclear has a "beyond-compliance" program to remove PCB-containing equipment from its inventory of electrical equipment. PSEG Nuclear's policy is to retire or retro fill electrical equipment taken out-of-service with PCB concentrations $\geq$ 50 ppm. Highlights of PSEG Nuclear's program include:

- In 1992, voluntary retro fill of 3 PCB ($\geq$ 500 ppm) and 16 PCB-contaminated ($\geq$50 and $\leq$ 499 ppm) transformers. All equipment known to contain PCBs are listed in Table 1 of the preceding section.
- As of 2000, all light ballasts known to contain PCBs have been removed. If a light ballast is suspected of containing PCBs in the future it would be tested per station procedures.
- Beginning in December of 2005 and continuing into 2006 upgrades to the on site power distribution system have resulted in the removal of 12 transformers/substations containing PCBs. (Thus, these were removed from Table 5.1.)

Further, as mentioned in Section 2.1, PSEG Nuclear implements an extensive DPRP that incorporates a variety of measures required pursuant to a variety of programs, including the installation of secondary containments, clean-up and removal of soils impacted by accidental releases and the development and implementation of Best Management Practices to manage stormwater. The DPRP program includes regular inspections that are conducted and recorded pursuant to Federal and State statutes and regulations. Although that plan addresses a wide range of potential discharges and pollutants, the activities performed will necessarily provide significant preventative maintenance. For example, the electrical equipment identified in Table 1 is inspected under this program. If a leak or spill is detected, PSEG Nuclear personnel can respond, help prevent discharges into the environment and repair or replace the defective equipment. Section 7.2 discusses how PSEG Nuclear will continue these practices as part of this PCB PMP.

7 Pollutant Minimization Measures

Rule Section 40.3.9.E.9

In addition to the extensive DPRP already in place, PSEG Nuclear is proposing to implement the following measures.

The oil-water separator at HCGS removes solids and floatable materials including any floating oil. The solids and recovered oil are transferred to an oily sludge holding tank before being removed to an U. S. Nuclear Regulatory Commission (USNRC) licensed disposal facility, if the residuals contain low levels of radioactivity. If the residuals are not radioactive, they are evaluated to determine if they are hazardous, requiring disposal in accordance with NJDEP regulations; and/or, a solid waste, requiring handling in accordance with those regulations. (Per New Jersey Administrative Code 7:26-1.1, "PCB Hazardous waste is defined as containing 50 ppm or greater PCBs by dry weight.) The system also has the ability to recycle oily sludge to promote settling of solids. Similarly, the oil-water separator at SGS removes solids and floatable materials including any floating oil. Similar disposal procedures are applied to the residuals from the SGS oil-water separator.

7.1 Actions to Minimize Known and Probable Sources

Neither SGS nor HCGS have known "internal" sources of PCBs. In the event an "internal" source is identified, appropriate minimization strategies will be developed, and the minimization strategy that provides the most reasonable practicable reduction will be implemented.

7.2 Actions to Identify and Control Potential Sources

As discussed in Section 6, PSEG Nuclear has had in place policies and procedures designed to identify and control potential sources of PCBs. PSEG Nuclear will continue the use of policies and procedures that are discussed in greater detail below.

Large transformers are typically equipped with internal devices that monitor oil levels and temperature. The monitors detecting a five (5) percent or greater loss of dielectric fluid would alert PSEG Nuclear personnel of a problem. Smaller transformers, oil circuit breakers (OCBs), switches, and miscellaneous electrical equipment that may not have such monitors, upon failure, would typically upset the electrical system resulting in the failure being detected. To further guard against discharges, responsible departments perform weekly transformer area inspections for transformers with no secondary containment or diversion systems. A log, used for each inspection, is maintained at the facility in accordance with the facility Records Management Program. In addition, more detailed transformer inspections are conducted quarterly.

PSEG Nuclear applies sound engineering practices and includes engineering controls during installation of new oil-filled electrical equipment. As a part of this, secondary containment or diversion has been provided for large oil-filled transformers. To further guard against unidentified discharges, selected transformer drains to the Salem oil/water separator may be isolated to allow visual identification of oil leakage. When existing electrical equipment is upgraded and/or replaced, PSEG Nuclear will install secondary containment structures and/or diversion systems on a scheduled basis where practicable.

PSEG Nuclear will use the results of the 2005 PCB Sampling Program and subsequent biennial sampling to determine if unknown sources of PCBs at SGS or HCGS are contributing PCBs to the discharges from SGS and HCGS. An indication that an unknown source exists would be a significant difference in the concentration and distribution of homologs that are present in the discharge sample and rainwater. If the existence of an unknown source is confirmed, PSEG Nuclear will first develop a strategy to identify the source. Once the source is identified, the extent to which the source can be controlled or eliminated will be determined. Control could include the possible modification of any treatment processes along the flow path to the Estuary that could help achieve the Maximum Practical Reduction in the PCB loading.

8 Source Prioritization

Rule Section 40.3.9.E.10

PSEG Nuclear prioritizes electrical equipment for retro-fill/replacement, on an annual basis as part of the PCB Assessment. Equipment is prioritized by concentration with consideration given to equipment based on PCB concentration. Any equipment requiring retro-filling or replacement is then handled through PSEG Nuclear's Business Plan. PSEG Nuclear also takes the opportunity when replacing transformers containing PCBs, to replace them with PCB free transformers.

9 Key Dates

Rule Section 40.3.9.E.11

Activity	Start Date	End Date
Complete sampling of PCB sampling program approved by DRBC (PSEGSC, March 2005; Fikslin, April 2005)		Complete
Develop schedule for reducing mass of PCBs in electrical equipment		Complete
Complete analyses of PCB sampling program approved by DRBC		Complete
Evaluate results of sampling program to determine if "unknown" sources of PCBs are entering the effluent streams		Complete
Implement PCB PMP per 4/25/06 DRBC Request		Complete
Design sampling program for first round of biennial sampling	10/1/2006	10/31/2006
First round of biennial sampling for PCB	2/1/ 2007	3/1/2007
Evaluate results of biennial sampling for PCBs	4/15/2007	6/30/2007
Draft and submit 1st annual report	4/15/2007	6/29/2007
Design sampling program for second round of biennial sampling	10/1/2008	10/31/2008
Second round of biennial sampling for PCBs	2/1/2009	3/1/2009
Evaluate results of second biennial sampling for PCBs	5/1/2009	6/30/2009
Revise PMP (including schedule) for future years	7/1/2009	7/15/2009
Monitoring for leaks from equipment known to contain, or potentially containing PCBs. Remove/repair leaking equipment. Change oil in leaking equipment to eliminate PCBs	On-going	
Track reductions in mass of PCBs due to change outs of equipment considered as a potential source of PCBs	On-going	

* Annual reports will be prepared and submitted in accordance with the DRBC's Water Quality Regulations for PMPs (Section 4.30.9) that are found at http://www.state.nj.us/drbc/PMPrule-May05.pdf.

10 Measuring, Demonstrating, and Reporting Progress

Rule Sections 40.3.9.E.12 and 40.3.9.E.13

PSEG Nuclear will determine the reduction in the mass of PCBs in the inventory of equipment listed in Table 5-1. The reduction will be measured from December 15, 2003, the day the Stage 1 TMDL was approved by the U. S. Environmental Protection Agency.

PSEG Nuclear will maintain a record of all unknown sources that are identified, and the reduction in PCBs due to the elimination or control of the source of the modification of an in-stream plant process that reduces the loading from the source to the Estuary.

PSEG Nuclear will construct a plot of the PCB loadings versus time to determine the trend in the discharge of PCBs in the discharges from DSN 489, DSN 48C, DSN 461C, and DSN 462B. The PCB loadings will be calculated using the results from the 2005 PCB Sampling Program, and subsequent biennial samples.

10.1 Sampling and Analytical Approaches

PSEG Nuclear will perform biennial sampling of the discharges from DSN 489A and DSN 48C at SGS, and from DSN 461C and DSN 462B at HCGS. The discharge flows will be sampled and analyzed following the Sampling and Analytical Requirements posted at http://www.state.nj.us/drbc/PCB_info.htm (as of June 1, 2005). The analytical requirements include the use of Method 1668A and the quality control specifications that are at http://www.state.nj.us/drbc/PCB-Modifications020305.pdf.

Other analytical methods will be evaluated and applied for screening or trackdown purposes as necessary.

10.2 Estimated Baseline Load

This section provides a combined estimate for SGS and HCGS of the annual baseline loading (in grams/year) of PCBs to the surface water of the Delaware Estuary. As explained in Section 4, the baseline loading is believed to be due to "wet" and "dry" weather fluxes from "external" sources, probable sources contributing to the each station's oil-water separator (namely, Outfall 461C at HCGS and Outfall 489 at SGS), and "unknown" sources that are influents to the two Stations' single sewage treatment system (Outfall 462B at HCGS). The total baseline loading is sum of the individual baseline loadings for each outfall. The individual baseline load is estimated as the product of the outfall's average annual discharge volume and the baseline concentration of total PCBs in the discharge.

Baseline Flow

The duration and magnitude of the discharge from DSN 461C are variable. For the period from January 2000 through July 2005, the daily average flow is 0.0426 MGD. Therefore, the annual volume of water discharged from DSN 461C is:

$$\textbf{Annual Discharge Volume} = \textbf{0.0426 MGD} \times \frac{\textbf{365}}{\textbf{yr}} = \frac{\textbf{15.5} \times \textbf{10}^{6}\ \textbf{gal}}{\textbf{yr}}$$

The Sewage Treatment System, DSN 462B, is an internal waste stream. For the period from February 2000 through July 2005, the average daily flow is 0.0131 MGD. Therefore, the annual volume of water discharged from DSN 462B is:

$$\textbf{Annual Discharge Volume} = \textbf{0.0131 MGD} \times \frac{\textbf{365}}{\textbf{yr}} = \frac{\textbf{4.8} \times \textbf{10}^{6}\ \textbf{gal}}{\textbf{yr}}$$

The duration and magnitude of the discharge from DSN 48C is variable. For the period January 1999 through June 2005, the average daily discharge is 0.1151 MGD. The corresponding annual volume of water discharged is:

$$\textbf{Annual Discharge Volume} = \textbf{0.1151 MGD} \times \frac{\textbf{365}}{\textbf{yr}} = \frac{\textbf{42.0} \times \textbf{10}^{6}\ \textbf{gal}}{\textbf{yr}}$$

The duration and magnitude of the discharge from DSN 489A is variable. For calendar years 1999 through 2004, the average daily discharge is 0.1073 MGD. The corresponding annual volume of water discharged is:

$$\textbf{Annual Discharge Volume} = \textbf{0.1073 MGD} \times \frac{\textbf{365}}{\textbf{yr}} = \frac{\textbf{39.2} \times \textbf{10}^{6}\ \textbf{gal}}{\textbf{yr}}$$

<u>Baseline Concentration of PCBs</u>

A grab sample of the discharge from Outfall 461C was collected on June 1, 2005. Approximately 120 congeners were detected. The sum of the individual concentrations of all congeners with concentrations equal to or greater than the Estimated Detection Limit ("EDL") was 1,968 picograms per liter (pg/l which is equivalent to 10^{-12} grams per liter). The sum of the EDLs of the undetected congeners is 93 pg/l. The total concentration of the detected congeners falls between the extremes of concentrations of PCBs in rainwater that Van Ry et al. (2002) reported for 7 coastal-suburban sites in densely- and lightly- populated areas and urban-industrial sites in New Jersey.

The distributions of PCB homologs in the single sample from each outfall are shown in Figure 10.1. Penta-PCBs and hexa-PCBs accounted for approximately 60 percent of the total PCBs.

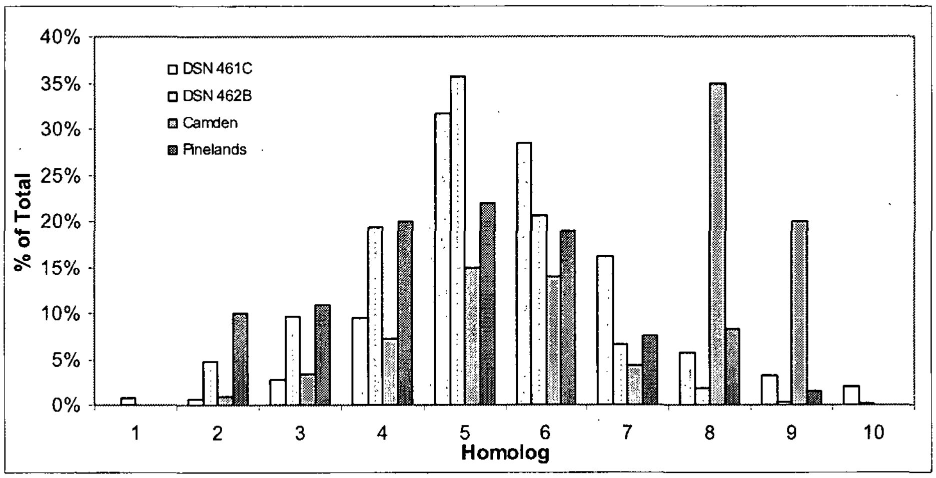

Figure 10.1 Relative distributions of homologs in the discharge from Outfalls DSN 461C and DSN 462B at Hope Creek Generating Station, and in rainfall at Camden and the New Jersey Pinelands

A grab sample of the wastewater that is discharged from Outfall 462B was collected on June 1, 2005. Approximately 160 congeners were detected. The sum of the concentrations of all congeners with concentrations equal to or greater than the Estimated Detection Limit ("EDL") is 7,284 pg/l (7.3 nanograms per liter or ng/l). The sum of the EDLs of the undetected congeners is 45 pg/l. The total concentration of the detected congeners falls between the extremes of concentrations of PCBs (0.35 ± 0.11 ng/l to 13.0 ± 2.8 ng/l) in rainwater that Van Ry et al. (2002) reported for 7 coastal-suburban sites in densely- and lightly- populated areas and urban-industrial sites in New Jersey.

The distributions of PCB homologs in the single sample and in rainfall samples collected at Camden, NJ and in the New Jersey Pinelands are shown in Figure 10.1. Penta-PCBs and hexa-PCBs accounted for more than 50 percent of all the PCBs in the sample from DSN 461C and DSN 462B. The percentages of the total PCBs appear to be higher than those based reported by Van Ry (2002) for the 7 New Jersey costal-suburban and industrial-urban sites. No mono-PCBs were detected.

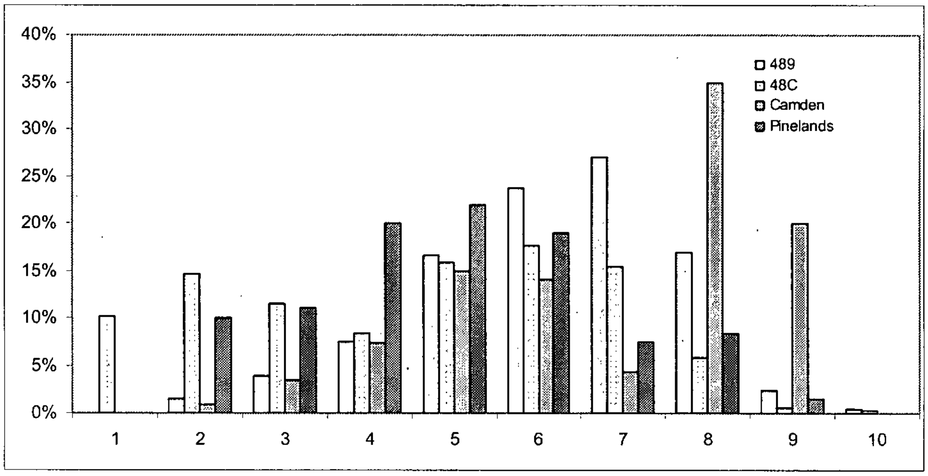

Figure 10.2 Relative distributions of homologs in the discharge from Outfall DSN 489 and DSN 48C at Salem Creek Generating Station, and in rainfall at Camden and the New Jersey Pinelands

A grab sample of the oil-water separator that is discharged from Outfall 489 was collected on June 1, 2005. Approximately 150 congeners were detected. The sum of the individual concentrations of all congeners with concentrations equal to or greater than the EDL is 3,634 pg/l. The sum of the EDLs of the undetected congeners is 48 pg/l. The total concentration of the detected congeners falls between the extremes of concentrations of PCBs in rainwater that Van Ry et al. (2002) reported for 7 coastal-suburban sites in densely- and lightly- populated areas and urban-industrial sites in New Jersey.

A 24-hour composite sample of the discharge from DSN 48C was collected on June 21, 2005. Approximately 90 congeners (excluding co-eluters) were detected. The sum of the individual concentrations of all congeners with concentrations equal to or greater than the EDL is 2,292 pg/l The sum of the EDLs of the undetected congeners is 128 pg/l. The total concentration of the detected congeners falls between the extremes of concentrations of PCBs in rainwater that Van Ry et al. (2002) reported for 7 coastal-suburban sites in densely- and lightly- populated areas and urban-industrial sites in New Jersey.

The distributions of PCB homologs in the single sample and in rainfall samples collected at Camden, NJ and in the New Jersey Pinelands are shown in Figure 10.2. With the exception of septa-PCBs, the distribution of PCBs in the discharge from DSN 489 appears to have characteristics of both the coastal-suburban and urban-industrial sites selected by Van Ry et al. (2002). This could be due to SGS and HCGS proximity to Camden and the New Jersey Pinelands. For the June 1, 2005 samples at DSN 489, hexa-PCBs and septa-PCBs account for approximately 50 percent of the total PCBs. Penta-PCBs and octa-PCBs account for approximately 33 percent of the total PCBs. No mono-PCBs were detected in this sample.

Baseline Loading

As of August 31, 2005, one sample was collected and analyzed from DSN 461C, DSN 462B, DSN 489, and DSN 48C. At this time, the estimated baseline concentration for each outfall is assumed to equal the total of the concentrations of individual congeners that are detected above the EDL plus an uncertainty factor. The uncertainty factor equals the sum of the EDL's of undetected congeners. The estimated baseline loading for an outfall is calculated by multiplying the estimated baseline concentration plus the uncertainty factor by the annual volume of discharge. The baseline loading from SGS and HGGS is the sum of the baseline loads for DSN 461C, DSN 462B, DSN 489, and DSN 48C. The following are the calculations for each outfall:

- DSN 461C – Oil-Water Separator (HCGS)

$$\textbf{Baseline Loading} = \frac{\textbf{1968 + 93 pg}}{\textbf{L}} \times \frac{\textbf{15.5} \times \textbf{10}^{6}\ \textbf{gallons}}{\textbf{yr}} \times \frac{\textbf{3.785 L}}{\textbf{gallons}} \times \frac{\textbf{10}^{-12}\ \textbf{g}}{\textbf{pg}} = \frac{\textbf{0. 121 g}}{\textbf{yr}}$$

- DSN 462B – Sewage Treatment Unit (HCGS)

$$\textbf{Baseline Loading} = \frac{\textbf{7284 + 45 pg}}{\textbf{L}} \times \frac{\textbf{4.8} \times \textbf{10}^{6}\ \textbf{gallons}}{\textbf{yr}} \times \frac{\textbf{3.785 L}}{\textbf{gallons}} \times \frac{\textbf{10}^{-12}\ \textbf{g}}{\textbf{pg}} = \frac{\textbf{0. 133 g}}{\textbf{yr}}$$

- DSN 48C – Sump for Demineralizer Waste and Unit No.2 Turbine Building Drains

$$\textbf{Baseline Loading} = \frac{\textbf{2292 + 128 pg}}{\textbf{L}} \times \frac{\textbf{42.0} \times \textbf{10}^{6}\ \textbf{gallons}}{\textbf{yr}} \times \frac{\textbf{3.785 L}}{\textbf{gallons}} \times \frac{\textbf{10}^{-12}\ \textbf{g}}{\textbf{pg}} = \frac{\textbf{0.362 g}}{\textbf{yr}}$$

- DSN 489A – Oil Water Separator (SGS)

$$\textbf{Baseline Loading} = \frac{\textbf{3634 + 48 pg}}{\textbf{L}} \times \frac{\textbf{39.2} \times \textbf{10}^{6}\ \textbf{gallons}}{\textbf{yr}} \times \frac{\textbf{3.785 L}}{\textbf{gallons}} \times \frac{\textbf{10}^{-12}\ \textbf{g}}{\textbf{pg}} = \frac{\textbf{0. 546 g}}{\textbf{yr}}$$

The sum of the individual baseline loadings from the four outfalls is 1.162 grams per year (g/yr).

10.3 Anticipated Reductions to Baseline Load

PSEG Nuclear does not anticipate an immediate reduction in the baseline load for several reasons. First, neither SGS nor HGCS have known sources of PCBs. Second, sufficient data are not available to determine if PCBs in the samples collected at DSN 489A and DSN 461C are from atmospheric deposition, an internal unknown source, or both. A reasonable estimate of reductions to the baseline load will require the collection of additional data which is the scheduled sample program, a more thorough understanding of the variability in the PCB concentrations in each of the discharges from statistical evaluation of the samples, the PCB congener species trend, and the discovery (if any) of "unknown" sources of PCBs at SGS and HCGS.

10.4 Continuing Assessment

Rule Section 40.3.9.F

PSEG Nuclear will rely on current monitoring plans approved by DRBC as the basis for completing this section. Key dates and activities associated with the continuing assessment are included in Section 9. This information will be augmented by the development of assessment matrices compatible with measuring progress through means other than achieving load reductions, for example, the tracking of PCB equipment removed from service and properly disposed.

11 References

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PSEG Nuclear LLC, Discharge Prevention and Response Program, Volume 2, January 27, 2005b.

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New Jersey Department of Environmental Protection, Hope Creek Generating Station, NJPDES Permit No. NJ0025411 March 1, 2003)

PSEG Services Corporation, Letter to Carol Collier, Executive Director, Delaware River Basin Commission, March 11, 2005

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United States Environmental Protection Agency, Regions II and III, Total Maximum Daily Loads for Polychlorinated Biphenyls (PCBs) for Zones 2- 5 of the Delaware River, prepared by the Delaware River Basin Commission, West Trenton, New Jersey, December 15, 2003

Van Ry, D.A. C.L. Gigliotti, T.R. Glenn, E.D. Nelson, L.A. Totten and S.J. Eisenreich (2002), " Wet Deposition of Polychlorinated Biphenyls in Urban and Background Areas of the Mid-Atlantic States", Environmental Science & Technology, Vol. 36, No. 15, Pgs.3201-3209.

Benyak, Darin 2006 Notice of Completeness of Pollutant Minimization Plan Submitted In Accordance with Section 4.30.9 of the Commission's Water Quality Regulations, NPDES #: NJ0005622 – Salem Generating Station and NPDES#: NJ00025411 – Hope Creek Generating Station, Delaware River Basin Commission, April 25, 2006

Salem/ Hope Creek Environmental Audit – Post-Audit Information

Question #: ENV-90, ENV-95, and ENV-96 **Category:** General

Statement of Question:
Please provide copies of the following maps, which were provided to Rich Bulavinetz during the Environmental Audit:

A Site Flood Data Map

B Vicinity Flood Data Map

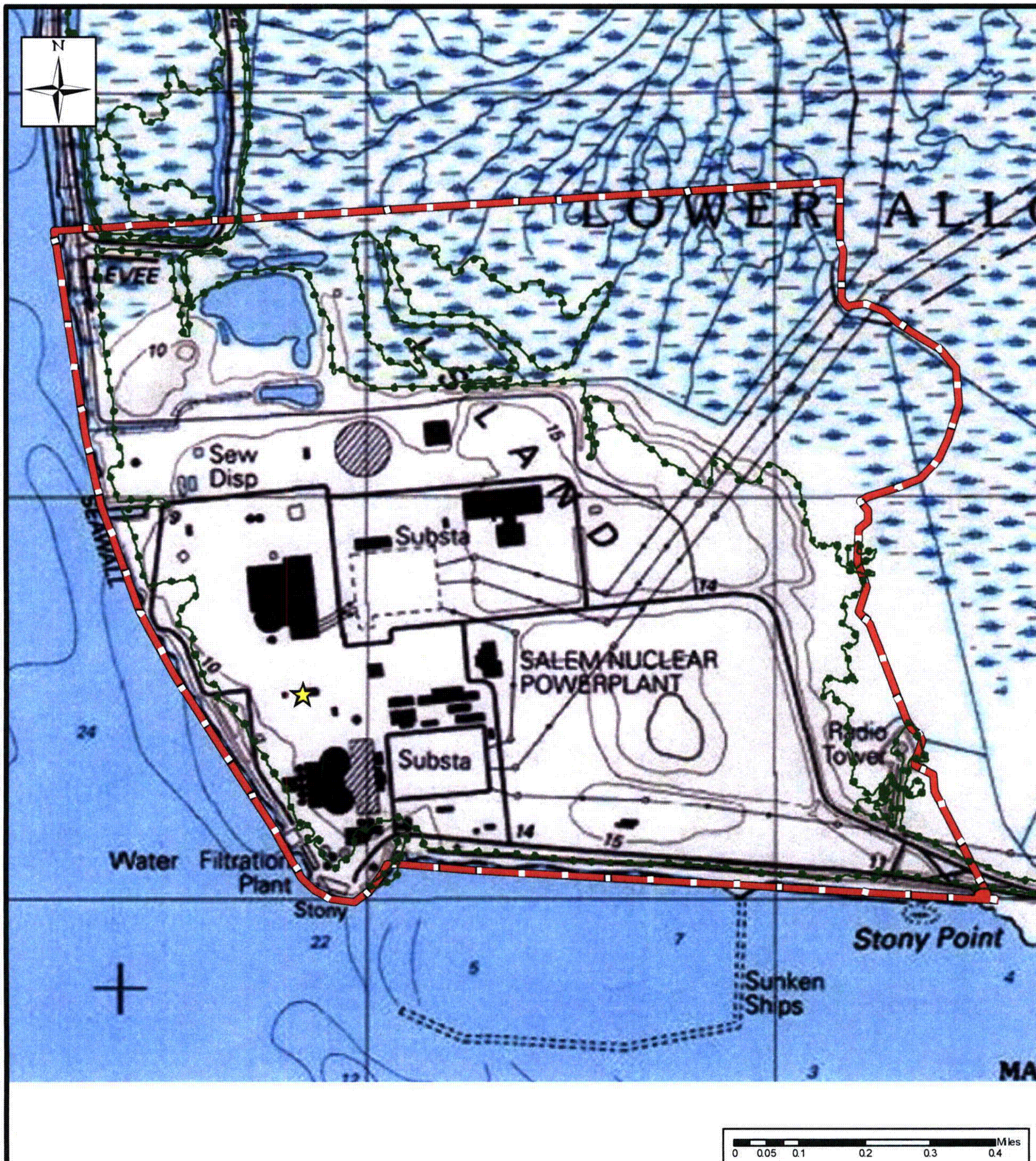
C Figure titled "1-mile Vicinity Map" for the site, with the 100-year flood plain added to the map

Response:
The requested maps are being provided. Please note that item C requests the same map as item B.

List Attachments Provided:

A Figure titled "PSEG License Renewal Environmental Report, Site Flood Data Map," which contains a USGS base map excerpt of the immediate area surrounding the PSEG-owned property on Artificial Island with the boundaries of the PSEG-owned property and the 100-year flood plain superimposed

B & C Figure titled "PSEG License Renewal Environmental Report, Vicinity Flood Data Map," which contains a USGS base map excerpt of the general vicinity surrounding the PSEG-owned property on Artificial Island with the boundaries of the PSEG-owned property and the 100-year flood plain superimposed



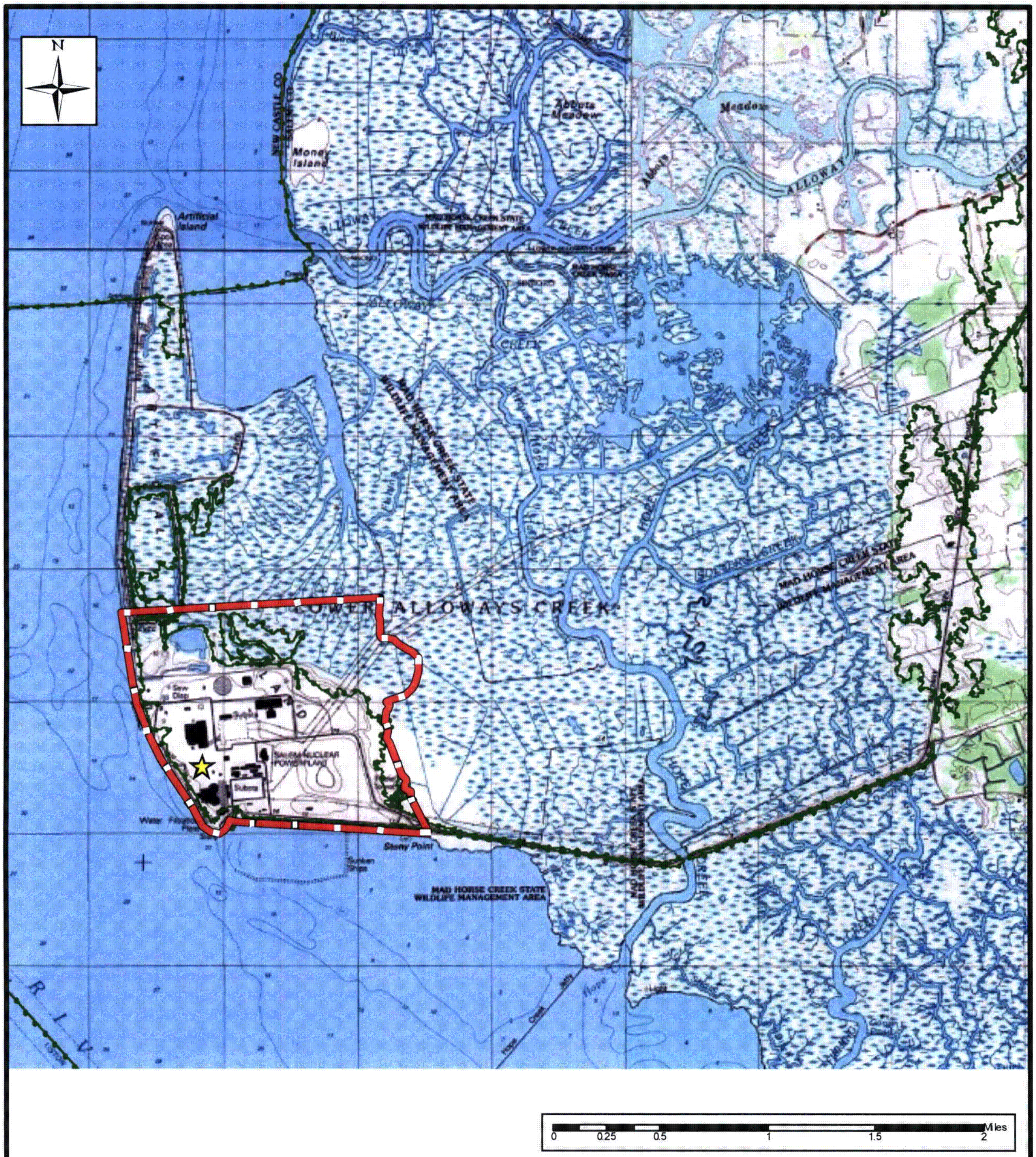
Legend

Salem and Hope Creek Generating Stations

PSEG Boundary

100-yr Floodplain

PSEG
License Renewal Environmental Report
Site Flood Data Map



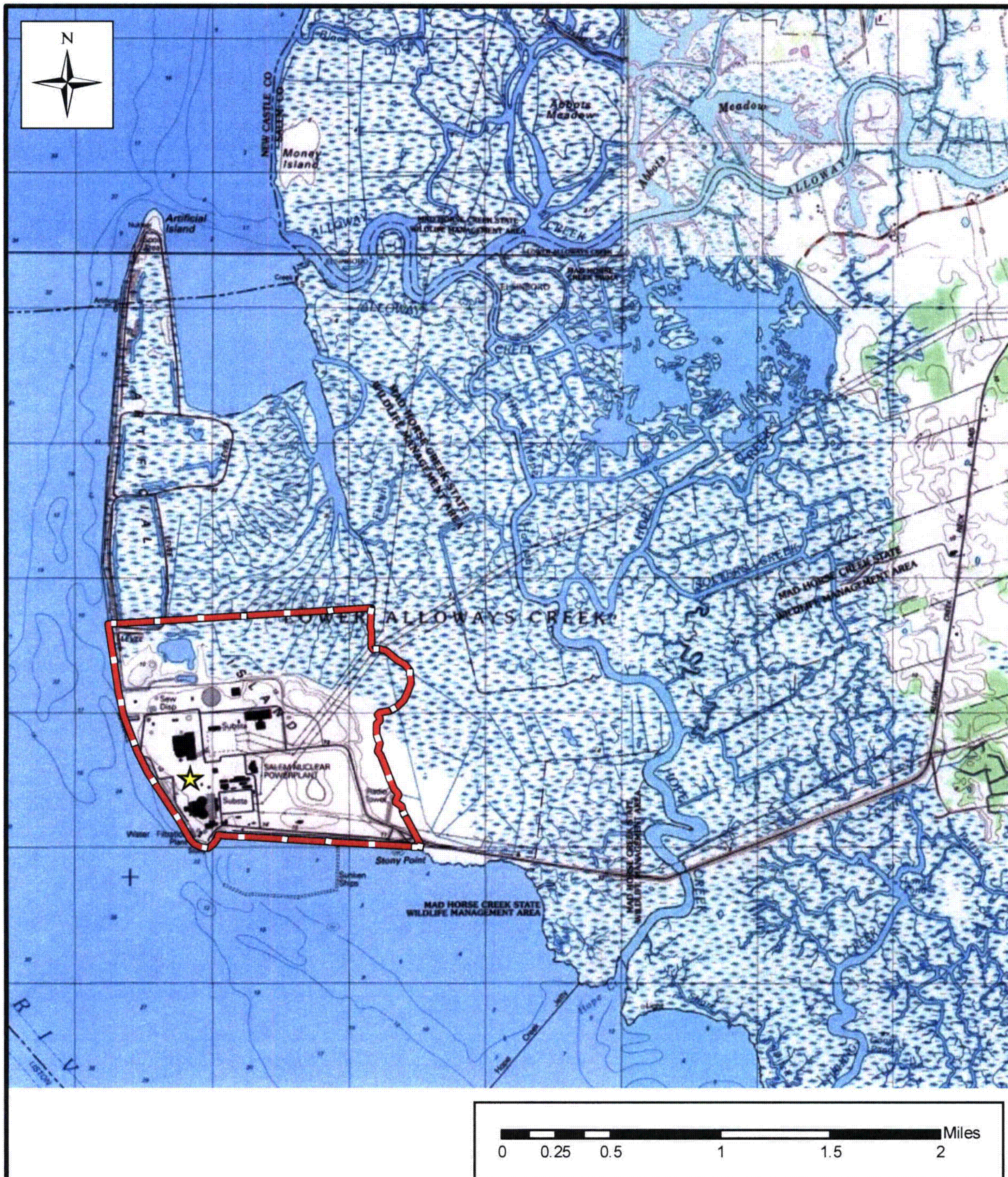
Legend

Salem and Hope Creek Generating Stations

PSEG Boundary

100-yr Floodplain

PSEG
License Renewal Environmental Report
Vicinity Flood Data Map



Legend

PSEG Boundary

Salem and Hope Creek Generating Stations

PSEG
License Renewal Environmental Report
1-Mile Vicinity map